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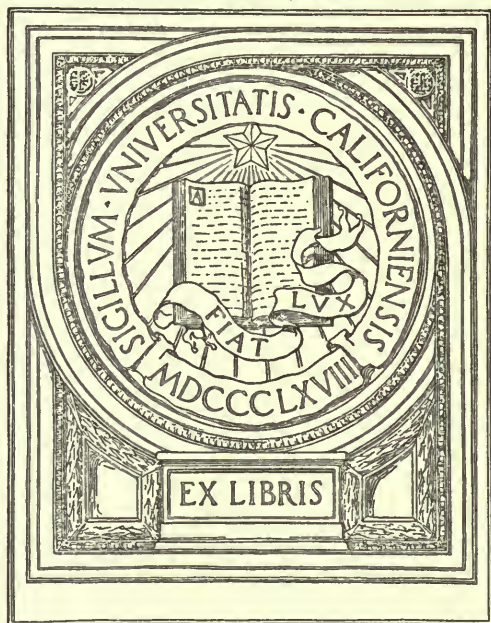
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THE CURRENCY AND INVESTMENT

BY

PACIFIC COAST MANUFACTURERS

BY

FRANK O. DOLY.

By Prof. R.A. Dolan,

For the Economic Society.

Stanford University, Nov, 1900.





INTRODUCTION.

THE HISTORY AND DEVELOPMENT

OF

PACIFIC COAST MANUFACTURING.

by

Frank C. Doty.

To Prof. E.A. Ross,

For the Economic Seminary.

Stanford University, May, 1896.

1896.2

THE HISTORY AND DEVELOPMENT

OF

PACIFIC COAST MANUFACTURING

BY

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UNIVERSITY OF  
CALIFORNIA

IN PART, E. A. ROSS,

FOR THE ECONOMIC SEMINARY.

STANFORD UNIVERSITY, 1911, 1912.



## INTRODUCTION.

The term 'Pacific Coast' as used in this paper applies generally to California, Washington, and Oregon. Sometimes it also includes Utah, because there is the birth place of the manufactures of the Pacific Coast in its broadest sense.

Sometimes its application is restricted to California, because there is a lack of definite and accurate information from the other states.

The paper has been divided into three parts. In the first, 'Origin of Pacific Coast Manufactures' the aim has been to point out the conditions giving rise to Coast Manufacturing. In the second, 'Selected Industries', five of the chief industries were selected for a somewhat detail study. The production of the raw material is touched upon, as well as the general account of the industry in its manufactured side; together with some account of individual establishment or factories. The five industries chosen are Woolen, Cotton, Iron, Beet Sugar and Flour. In third part are brought together those factors that have worked for the development, both in a positive and negative manner, of the Coast's industries. Only a general account is here given.

## INTRODUCTION.

The term "Pacific Coast" as used in this paper applies generally to California, Washington, and Oregon. Nevada is also included under the term in the fifth class of the nomenclature of the Pacific Coast in its broadest sense.

Sometimes the application is restricted to California because there is a lack of definite and accurate information from the other states.

The paper has been divided into three parts. In the first, 'Origin of Pacific Coast Industries', the aim has been to point out the conditions giving rise to these industries. In the second, 'Selected Industries', five of the chief industries are selected for a somewhat detailed study. The selection of the five industries is founded upon, as well as the general account of the industry in its development with together with some account of individual establishments or factories. The five industries chosen are Woolen, Cotton, Lumber, Sugar and Flour. In this part are brought together the factors that have worked for the development, both in a past and present manner, of the Coast's industries. This is a general account is here given.



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## Chapter I.

### ORIGIN OF PACIFIC COAST MANUFACTURING.

Mining, Agriculture and Manufacturing are the three great industries of the Pacific Slope. Mining, chronologically considered, occupies the first place. But it is not so easy to say positively which of these is first, Agriculture or Mining; because when mining began to lose its prestige as a controlling industry and therefore of the mining period attention was turned to each of these industries about the same time.<sup>†</sup>

Agriculture, however, deserves the second place, because its development has been more steady and constant. Mining was predominant, Agriculture was predominate, and now the question, Is there any reason to think that Manufacturing will become predominate? presents itself.

Mining, as stated above, was the first great industry of the Coast. It has had a more direct bearing upon and con-

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<sup>†</sup> Cal. Agri. Society Report, 1888, p. 450-451.



CHAPTER I.

CAUSE OF AGRICULTURAL PROGRESS.

Mineral, agricultural and manufacturing are the three great industries of the world. Mining, chronologically considered, occupies the first place. But it is not so easy to say positively which of these is first, Agricultural or Mining, because when mining began to lose its prestige as a controlling industry and component of the rising period of civilization the cause of its decline is lost.

Agriculture, however, has been the second since, because its development has been more steady and consistent. Mining was, however, Agricultural was subordinate, and not the reverse. It is hard to reason to show that manufacturing will become the dominant force in the future.

Mineral, as stated above, was the first great industry of the world. It has led to the development of iron and steel.

stitutes a greater part in the development of Coast manufactures than has been ordinarily assigned to it. What a power has been the stream of influence that has flowed through the door,, opened by John Marshall, when he picked up the golden key in the "beautiful vale" on the twenty-fourth of January, eighteen hundred and forty eight.<sup>1</sup>

It will be appropriate, therefore, to follow for a distance this wonderful stream, which has ever increased in volume.

The fact of the gold discovery took a trip around the world. It left its impression upon the dweller of the Middle States, upon the resident of New England, upon the inhabitant of the Southern section. It crossed the ocean, toured Europe and visited various parts of the Orient.<sup>2</sup>

The effect of this journey was to lead hither men in various degrees of mental and moral development. Hence the

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<sup>1</sup> Bancroft, Hist. of California, VI, 22.

"It is the dawn of history in these parts." "All along the centuries California had lain slumbering, wrapped in obscurity, and lulled by the monotone of the ocean." But finally "came the awakening impelled by a ruder invasion of soldiers and land greedy backwoodsmen, the premonitory ripple of international interest and world absorbing excitement."

<sup>2</sup> Shaler, Hist. of U.S., I, 346.

illustrated a greater part in the development of Great Britain.  
 There has been the stream of influence that has flowed through the  
 door, opened by John Ruskin, when he spoke in the pulpit  
 for the "socialist war" on the twenty-fourth of January,  
 eighteen hundred and forty-eight.

It will be appropriate, therefore, to follow for a dis-  
 tant this social-war system, which has ever followed in his  
 wake.

The fact of the gold standard took a little longer to  
 settle. It left the impression upon the dealer of the United  
 States, upon the resident of New England, upon the industrial  
 of the Southern States. It crossed the ocean, found refuge  
 and visited various parts of the world.

The effect of this history was to lead Wilson and in  
 various degrees of detail and social development, since the

Bancroft, Hist. of California, VI, 11.  
 "It is the story of a great, in those words." All about  
 the country California has been growing, growing in ex-  
 tensity, and filled by the millions of the people. But finally  
 came the awakening brought by a new invasion of soldiers  
 and land grew more and more, the agricultural fields of inter-  
 national interest and world economic relations.



motley aspect of the population.<sup>1</sup>

A clearer idea of the population question will be gained if heed to a few statements in reference to it before the gold discovery is taken. What were the elements in the population of that time and what of its numerical strength? According to Mr. Bancroft, there were the Hispano-Californians, who controlled affairs in the south; while in the north men from the United States were in the ascendency. "These latter (i.e. U.S. men) are (1848) already nearly equal to the former, numbering somewhat over six thousand, while the Hispano-Californians may be placed at one thousand more. The ex-neophyte natives in and about the ranches and towns are estimated at from three thousand to four thousand, with twice as many among the gentile tribes. The new element classed as foreign before the conquest of eighteen hundred and forty six, had from one hundred and fifty in eighteen hundred and thirty grown slowly till eighteen

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<sup>1</sup> "Humanity here is varied". This refers to California previous to 1848 but is just as applicable later. Bancroft, Hist of California, VI, 2.

"From Mexico, from Europe, from the Atlantic States, from South America and from China there came pouring into the port of San Francisco and down the western slope of the Sierras in wagons and on foot such a mixed and heterogeneous mass of energetic, daring and reckless men as had never before invaded any part of the continent." Cal. Agr. Society Report, 1888, p.449.





hundred and forty five; after which it took a bound assisted by over two thousand who came as soldiers in the regular and volunteer corps, not included in the muster rolls..... The first steady stream of immigrants is composed of stalwart, restless backwoodsmen from the western frontier of the United States; self reliant and of ready resource in building homes, even if less enterprising and broadly utilitarian than those who followed them from the eastern states."

Another element is the English representative, "burly of mind and body, full of animal energy, marked by aggressive stubbornness, tinotured with brusqueness and conceit."

In this list a place is given to the "omnipresent, quick witted" Celt, who is "more sympathetic and self adaptive than the arrogant and prejudiced Englishman or the coldly calculating Scot." And to the "easy going, plodding German, with his love of knowledge and deep solidity of mind."

Other component parts may be added to the number already mentioned, as for example, the Italians.<sup>1</sup>

It may assist to clearness, if the facts just stated are kept in mind, on passing across the line of "forty eight"

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<sup>1</sup> Bancroft, Hist. of Cal., VI, 3-4; Shaler, Hist. of U.S., I, 345.



hundred and forty five; after which it took a round voyage by  
over two thousand who were as well as in the regular and well-  
order, and included in the winter policy. The first  
steady stream of immigrants is composed of students, teachers  
backed from the various branches of the United States;  
well trained and at the same time in the United States, even in  
less entertaining and possibly well known than those who had  
been from the western states.

Another element in the English immigration, "though  
of mind and body, full of natural energy, method of organization  
stagnation, almost with stagnation and stagnation."

In this last a place is given to the "immigrants,"  
which is the "first" and is "more considerable and well known  
than the English and American immigrants at the same time;  
suffering from" and in the "very young, growing, and  
his love of knowledge and deep ability of mind."

Other immigrants, such as we have seen in the north of  
which mentioned, as for example, the Italians.

It was said to be known, if the facts had been  
are kept in mind, on a scale between the line of "very young"

U.S. 1, 1880.  
U.S. 1, 1880.

into "forty nine".

The immediate effect of the discovery incident on California was abandonment of farms, closing of stores and setting off every man to the gold field.<sup>1</sup> But the ten thousand gold seekers of early "forty nine" increased to more than one hundred thousand by the close of "forty nine".

This fact raised California from an insignificant colony into a busy and thriving Commonwealth; and lifted her metropolis from a hamlet to a commercial center. As a consequence of these circumstances, the period of probation, common to all territories before admission to statehood, was obviated. California became a state of the Union the next year.<sup>2</sup>

From the preceding paragraphs it becomes clear that the discovery of gold was not only the beginning of the early mining era of the Pacific Coast, but it also was the direct influence that increased the population to more than one hundred thousand souls, from a number less than fifteen thousand or twenty thousand perhaps.

A pertinent question at this point is, What was the character of the majority of this one hundred thousand? One

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<sup>1</sup> Baneroft, Hist. of Cal., VI, ;

Shaler, Hist. of U.S., I, 346.

<sup>2</sup> Shaler, Hist. of U.S., I, 346.



into "forty nine".

The immediate effect of the discovery incident on California was momentous of course, clearing of clouds and setting off every eye in the gold fields. But the real significance of early "forty nine" increased so much that one hundred thousand by the close of "forty nine".

This first influx of California from an insignificant colony into a busy and thriving Commonwealth; and it was not until California from a frontier to a commercial center. As a consequence of these circumstances, the period of discovery, from now to all territories before admission to statehood, was observed. California became a state of the Union the next year. From the preceding paragraph it becomes clear that the discovery of gold was not only the beginning of the early mining era of the Pacific Coast, but it also was the direct influence that increased the population to more than one million thousand people, from a number less than fifteen thousand or twenty thousand people.

A certain question at this point is, What was the character of the majority of this new hundred thousand?

1. American, 2. English, 3. Irish, 4. Scotch, 5. German, 6. French, 7. Italian, 8. Spanish, 9. Portuguese, 10. Chinese, 11. Japanese, 12. Hawaiian, 13. Samoan, 14. Tongan, 15. Fijian, 16. Maori, 17. Zulu, 18. Xhosa, 19. Ndebele, 20. Sotho, 21. Tswana, 22. Venda, 23. Nguni, 24. Shona, 25. Nyanja, 26. Bemba, 27. Lunda, 28. Ovambo, 29. Herero, 30. Nama, 31. Damara, 32. Boer, 33. Dutch, 34. English, 35. American, 36. French, 37. German, 38. Italian, 39. Spanish, 40. Portuguese, 41. Chinese, 42. Japanese, 43. Hawaiian, 44. Samoan, 45. Tongan, 46. Fijian, 47. Maori, 48. Zulu, 49. Xhosa, 50. Ndebele, 51. Sotho, 52. Tswana, 53. Venda, 54. Nguni, 55. Shona, 56. Nyanja, 57. Bemba, 58. Lunda, 59. Ovambo, 60. Herero, 61. Nama, 62. Damara, 63. Boer, 64. Dutch, 65. English, 66. American, 67. French, 68. German, 69. Italian, 70. Spanish, 71. Portuguese, 72. Chinese, 73. Japanese, 74. Hawaiian, 75. Samoan, 76. Tongan, 77. Fijian, 78. Maori, 79. Zulu, 80. Xhosa, 81. Ndebele, 82. Sotho, 83. Tswana, 84. 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author says, "it is probable that no better class of immigrants was ever assembled on these western shores, than that which consisted the California pioneers. The very poor were deterred by the distance and the cost of the journey; the indolent and timid, the aged and infirm, by its hardships; nor for such did the life in the far west, its privations and vicissitudes, present any stronger attraction. From all the nationalities came their chosen manhood".<sup>1</sup> "Not the least noticeable features" of this group of new arrivals "were the youthfulness and vigor, the energy, fortitude, and manly self reliance of its members"<sup>2</sup>. The majority were "full of latent vivacity; of strong intellect, here quickening under electric air and new environment; high strung, attenuated, grave, shrewd, and practical and with impressive positiveness."<sup>3</sup>

Here the query, What has the gold discovery in connection with the manufacturing industries of the Coast? may present itself. There is a very important connection. On the one hand, the situation of "forty eight" and the years immediately following made manufacturing impossible.<sup>4</sup> On the

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<sup>1</sup> Shaler, Hist. of U.S., I, 346-347.

<sup>2</sup> Ibid.

<sup>3</sup> Bancroft, Hist. of Cal., VI, 3.

<sup>4</sup> This I shall attempt to show in a subsequent paragraph

1. This I shall attempt to show in a subsequent chapter.  
 2. Summary, *ibid.* of *ibid.*, vii, 3.  
 3. *ibid.*  
 4. Summary, *ibid.* of *ibid.*, i, 345-347.



other hand, however, the very phase of the Coast industries in question has its origin here. How? By giving to the Coast, the necessary personal element. This is the most important factor in the successful building up of all such enterprises.

To this era is due the credit of attracting to this Coast a sufficient number of men, who knew how to adapt themselves to their environment, and who knew also how to make that environment minister to their wants and needs. It drew here those who could manufacture, the American from the East and middle west; the Englishmen, from a manufacturing country. These, with the German, had far more to do with the beginning and carrying on of Pacific Coast manufactures than at first sight appears.

We have had pointed out to us recently, the unfavorable environment for manufactures in Mexico; and in addition a more important fact of the unfitness for and the indifferent disposition of the people themselves to manufacturing enterprises.<sup>1</sup> It is true that the necessary qualifications for manufacturing were possessed by some of the Coast's inhabitants prior to the great rush for gold, but there was not a

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<sup>1</sup> Sheldon, Industrial Development of Mexico; San Francisco Chronicle, December 30, 1894.



other hand, however, the very phrase of the Coast Indians in question has its origin here, West of Davis to the Coast, the necessary general element. This is the most important factor in the successful building up of all such enterprises. To this end is the study of attention to this Coast a sufficient number of men, who have had to adapt themselves to their environment, and who have also had to have their environment minister to their needs and needs. It does have these men as its foundation, the American from the East and middle west; the Englishman, from a manufacturing country. These, with the German, had had more to do with the planning and carrying on of this Coast movement than at first sight appears.

We have had pointed out to us recently, the importance of environment for communities in Mexico; and in addition a more important fact of the conditions for and the influence of the people themselves in manufacturing enterprises. It is true that the necessary qualifications for manufacturing were possessed by some of the Coast's inhabitants prior to the great rush for gold, but there was not a

sufficient number to carry on extensive undertakings.<sup>1</sup> But had the immigration to the Coast continued at the same rate of increase as previous to the discovery. I am inclined to think that California, Oregon and Washington would scarcely be worthy of notice, so far as this side of their development is concerned. Surely progress under present conditions is slow enough.<sup>2</sup>

Having now given some account of the most important element contributed by the mining era of the Pacific Coast, and which made manufacturing subsequently possible, we come next to note the condition which made manufacturing temporarily possible.

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<sup>1</sup> "At one breath, gold cleared a wilderness and transplanted thither the politics and institutions of the most advanced civilization in the world." Bancroft, Hist. of Cal., VI, 426.

<sup>2</sup> There is an interesting contrast in the manner of immigration before and after "forty eight". Preceding '48, it was done "quietly with deferential air, they drop in asking hospitality; first as way-worn stragglers, from trapping expeditions, or as deserting sailors from vessels prowling along the coast in quest of trade or secrets. The compact bands of restless, frontier settlers slip over the border, followed by the firmer tread of determined pioneers, who wait for strength and opportunity. Bancroft, Hist. of Cal., VI, 2.

After '48 we get a glimpse by noting the fact that within twelve months more than one thousand vessels entered San Francisco port. Immigration was sudden, lively, rushing. Shaler, Hist. of U.S. I, 346.



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 be worthy of notice, as far as this kind of their development  
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 slow enough.

Having now given some account of the most important  
 element determined by the mining age of the Pacific Coast,  
 and which will undoubtedly substantially possible, we now  
 wish to note the conditions which made manufacturing impos-  
 sible.

At one stretch, gold showed a wilderness and trans-  
 portation within the wilderness and limitations of the west and  
 beyond civilization in the world. "Barrenly, list of 1861,"  
 VI, 221.

There is an interesting contrast in the manner of  
 investigation before and after "forty years." "Production," 47,  
 it was done "quickly with information" and, like that in the  
 ing knowledge; first as day-work and later, then dropping  
 extensions, or as answering self-reliance and various traveling  
 along the coast in quest of trade we relate. The account  
 seems of freedom, freedom, freedom, and the coast and harbor,  
 followed by the first trend of settlement, however, the  
 with far strength and opportunity. "Barrenly, list of 1861,"  
 VI, 2.

After we get a glimpse of seeing the time that  
 within twelve months more than one hundred thousand entered  
 San Francisco port. Immigration was enormous, largely, perhaps,  
 "Barrenly, list of 1861," 222.



An examination of the prices of the period will sufficiently indicate the situation.

In eighteen hundred and forty nine, and fifty common labor commanded from eight to ten dollars a day. Mechanical labor, however, demanded much more. Could any one afford to engage in manufacturing? This is not all. No. Through the whole period in mind the situation remained the same. "There were few articles of general consumption that could not be imported for the merest fraction of what would then be the cost of local production. All that man needed for daily use was imported by sea, from the miner's shovel to the ready made storehouse of the merchant. In March "forty eight" flour was selling in San Francisco at five dollars per hundred weight; a month or two later, at fifteen dollars, while later still, in some of the mining camps it sold for two hundred dollars and more. In the winter of "forty nine" a pair of blankets or boots in Coloma were worth from sixty to seventy dollars; on the north fork of the American river, where were some of the richer placers, five dollars a pound was the usual price of provisions, and at the southern mines a bottle of liquor could not be had for less than twenty dollars. At many points there were no established rates, goods of whatever description selling at whatever the conscience of the shopkeeper permit-

An examination of the prices of the period will not-  
 violently indicate the situation.

In sixteen hundred and forty nine, and fifty seven  
 labor commanded from eight to ten dollars a day. Mechanical  
 labor, however, demanded much more. Could any one afford to  
 engage in manufacturing? This is not all. No. Through the  
 whole period in which the situation remained the same. There  
 were few articles of general consumption that could not be  
 procured for the lowest price of what could then be the  
 cost of their production. All that was needed for daily use  
 was imported by sea, from the shore's abroad in the ready and  
 abundance of the market. In March "forty nine" there was  
 nothing in the provisions at five dollars per hundred weight;  
 a bushel of corn, a bushel of wheat, a bushel of barley, a bushel of  
 in some of the other things is sold for two hundred dollars  
 and more. In the winter of "forty nine" a pair of chickens  
 or geese in Canada were worth from thirty to seventy dollars;  
 on the south coast of the American river, where some of  
 the finest fisheries, five dollars a pound was the usual price  
 of herrings, and of the codfish from a dollar to fifteen  
 could not be had for less than twenty dollars. At some points  
 there were no established rules, goods of whatever description  
 selling at whatever the necessities of the shipmaster permitted.



ted him to charge."<sup>1</sup>

Fortunate, however, for the Pacific Coast this intensified condition did not long continue. For several years it is true the mines gave a generous yield to the labors of the gold digger. In "forty nine", forty millions of dollars were obtained; but the maximum yield of sixty five millions of dollars was reached in eighteen hundred and fifty three.<sup>2</sup>

Thence began the decline. The great period of inflation was gone and with it went many a valuable cargo of goods, which clearly indicated a "woful lack of business judgment." Thus departed the great era that initiated California into the mysteries of the Union, and which gave rise to those industries upon which the coast must and has since depended. "The good old days of "forty nine" were gone" never more to return.

We turn now to agriculture, the hand maid of manufacturing. Necessity gave rise to this great branch of the Coast's industries.<sup>3</sup>

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<sup>1</sup> Shaler, Hist. of U.S. I, 348.

<sup>2</sup> Ibid.

<sup>3</sup> "Modern agriculture, as we know it on this coast today was born of the necessity of those early years." - Transactions of Cal. St. Agri. Soc., 1881, p 27.



[illegible]

These days of "lonely night" were never more to be forgotten. Upon which the great world had been founded. "The good" of the Union, and which gave rise to these industries reported the great and long industrial revolution into the world. Thus clearly revealed a "total lack of business judgment." These was gone and with it went many a valuable source of goods, which these days of inflation. The great period of inflation.

Inc. Domestic give rise to this great branch of the Social  
Industrial

2000, 10, 1 To: 1000, 10, 1

662

of Del. St. Arch. Soc., Jan. 1907.

was born of his parents at their home near York - Pennsylvania

G. Johnson, Esq., as we know it on this date today

The falling off in the yield of the mines compelled men to seek other fields of labor. They must live and many of those who were possessed of sufficient foresight concluded that they could do as well here as elsewhere. Consequently they turned to the valley, and began to plant and cultivate. The extent to which this has been carried will appear from a few historical statements.

In eighteen hundred and fifty three, the year of the greatest annual product of the mines, agriculture was still in "swaddling clothes."<sup>1</sup> But slowly and surely agriculture became so large that it had to lay aside its once necessary dress and don that belonging to a higher station. Thus implying that it had grown to sufficient size to be able to satisfy the wants and needs of the Coast population. Grain and stockraising were the principal elements of the earlier period.<sup>2</sup> But later, cultivation of fruits of all varieties assumed an important place.<sup>3</sup>

A few figures will give a clearer idea of the growth of agriculture. Take wheat. In eighteen hundred and seventy seven and seventy eight, California alone had one million

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<sup>1</sup> Scientific American, December 26, 1891.

<sup>2</sup> Shaler, Hist. of U.S., I, 349.

<sup>3</sup> Internal Commerce Report, 1890, p 295.



The falling off in the yield of the crops compared with 1910

was about 10 per cent. They must live and work

those who were possessed of sufficient resources to maintain

that they would be as well off as elsewhere. Consequently

they turned to the soil, and began to plant and cultivate

The extent to which this has been carried will depend upon

a few historical factors.

In various countries and fifty years, the year of the

greatest extent of the wheat, grain and other crops

in "wheat-growing" is still slowly and steadily increasing

because the large area of land is now being

city areas and the land is being used for a variety of other

improving that it has given to agriculture and to the state

making the world and most of the best population. Grain

and stock-raising with the principal elements of the better

period. But later, cultivation of lands of all varieties

remains an important factor.

A few figures will give a general idea of the growth

of agriculture. This shows in figures that the growth

has been steady since 1870. The following shows the growth

<sup>1</sup> *Scientific American*, December 10, 1910.

<sup>2</sup> *Statistical Abstract of U.S.*, 1911.

<sup>3</sup> *Internal Commerce Report*, 1911, p. 12.



EIGHT HUNDRED THOUSAND wheat acreage, yielding sixteen million cantals; in eighteen hundred and ninety and ninety one, three million acres were sown to wheat, producing thirty million cantals. This shows an increase of more than fifty per cent in thirteen years. The price of the same at tide water in eighteen hundred and eight was one dollar and seventy cents; in eighteen hundred and ninety one, it was two dollars two and one-half cents.

As to other grains, the barley product was one fourth of the entire supply of the Union.<sup>1</sup>

Taking a somewhat broader view we learn from the census reports that California, Oregon and Washington had in eighteen hundred and fifty, two thousand and thirty six farms, cultivating one hundred and sixty five thousand three hundred and eleven acres.<sup>2</sup> In eighteen hundred and sixty, twenty five thousand eight hundred and fifty two farms tilled two million four hundred and forty six thousand acres.<sup>3</sup> In eighteen hundred and seventy, thirty four thousand four hundred and thirty eight farms cultivated seven million

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<sup>1</sup> Scientific American, April 2, 1892, p. 213.

<sup>2</sup> Census Report, 1860. 'Agriculture'.

<sup>3</sup> Ibid.





five hundred and twenty six thousand four hundred and twenty nine acres.<sup>1</sup> In eighteen hundred and eighty, fifty eight thousand six hundred and eighty farms included twenty two million two hundred and seventeen thousand eight hundred and seventy five acres.<sup>2</sup> These figures give us the growth of agriculture.

A few words by way of summary from the conclusion of this chapter.

"The American conquest of California made an industrial revolution on the Pacific Coast, unparalleled in its completeness, its suddenness and its wide-reaching influences.

<sup>1</sup> Census Report, 1870. 'Wealth and Industry.

<sup>2</sup> Census Report, 1880. This is the latest report giving figures desired. The following table presents this matter in these figures:

Number of Farms.

State	1850	1860	1870	1880
Cal.	872	18,716	23,724	35,934
Oregon	1164	5,806	7,587	16,217
Wash.	---	1,330	3,127	6,529
Total	2,036	25,852	34,438	58,680

Number of Acres under Cultivation.

State	1850	1860	1870	1880
Cal.	32,454	2,468,034	6,218,133	16,593,742
Oregon	133,857	896,414	1,116,290	4,214,712
Wash.	---	31,369	192,016	1,409,421
Total	166,311	2,446,317	7,526,429	22,217,875



five hundred and twenty six thousand four hundred and  
 twenty nine acres.<sup>1</sup> In eighteen hundred and eighty, fifty  
 eight thousand six hundred and eighty seven acres nearly  
 two million two hundred and seventeen thousand eight hundred  
 and twenty five acres.<sup>2</sup> These figures give an idea  
 of the growth of the industry.

A few words by way of summary from the collection of  
 this report.

\*The following statement of the Illinois State Industrial  
 Commission on the cattle trade, supplemented in its con-  
 sideration, the statistics and the other valuable information.

<sup>1</sup> Census Report, 1870, U. S. Census and Industry.

<sup>2</sup> Census Report, 1880. This is the latest report of  
 the figures available. The following table presents this  
 report in more detail:  
 Census of 1880.

State	1880	1870	1860
Ill.	18,716	18,716	18,716
Ariz.	1,164	1,164	1,164
Cal.	1,164	1,164	1,164
Tex.	1,164	1,164	1,164
Total	22,000	22,000	22,000

State	1880	1870	1860
Ill.	1,164	1,164	1,164
Ariz.	1,164	1,164	1,164
Cal.	1,164	1,164	1,164
Tex.	1,164	1,164	1,164
Total	4,456	4,456	4,456

The number of English, German, American and French residents rapidly increased, the European becoming speedily Americans in their sympathies and modes of working... and in one year three times as many men as the entire previous white population of the Territory rushed to it by land and sea... Year after year the throng continued to pour in. For five years the average washing of the industrious miner amounted to twelve dollars a day and frequently rose to forty dollars without any apprenticeship or special skill. This high pay left little chance for profit on local agricultural products or manufactures. Such articles could be obtained in abundance at less expense, from other countries. There were few farms and no factories. All the clothing and tools, most of the provisions and lumber and even ready made houses were imported. The two almost exclusive occupations of the people north of the latitude of Monterey were mining and trading.<sup>1</sup>

But the five years<sup>2</sup> constituting this important period drew from other sections the necessary personal element by the magnetic force in gold. Not long was the fact that

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<sup>1</sup> Hittell, Pac. Coast Conn. and Judus, 48.

<sup>2</sup> 1848 - 1853.





prosperity was safer and surer down in the rich valleys than in the high places in search for the yellow substance,<sup>1</sup> hidden from the new population of the coast. Out of these has come the third great industry of the Pacific Coast, namely Manufacturing. X

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 rise to<sup>1</sup> Scientific American, December 26, 1891. - See Overland Monthly, Vol. II, p. 280 ff.

we, some men in various capacities of these industries, which are regarded as representative, and as possessing great possibilities for the future.

#### 1. Woollen Industry.

One of the earliest founded branches<sup>1</sup> of Pacific coast industry is the manufacture of woollen fabrics. Since their introduction there has been in the minds of this business and which also gave great encouragement to this line of manufacturing, we may state in a few paragraphs the situation of this branch of our industry.

The opening of wool and the production of wool has stimulated wool production during the forty five years that have elapsed since the Americans began to devote their

<sup>1</sup> Overland Monthly, Vol. II, p. 280.

property was sold and water sold in the village  
 then in the high phase in search for the yellow mountains,  
 hidden from the new population of the coast. One of them  
 has come the third great industry of the Pacific Coast,  
 namely, *hydroelectricity*.

Scientific American, December 22, 1901. - 222  
 Overland Monthly, Vol. 11, p. 263 ff.

## Chapter II.

### SELECTED INDUSTRIES.

Having considered in part the conditions that gave rise to the manufacturing industries of the Pacific Coast, we, come now to examine certain of these industries, which are regarded as representative, and as possessing great possibilities and importance for the future.

#### 1. Woolen Industry.

One of the earliest founded branches<sup>1</sup> of Pacific Coast industry is the manufacture of woolen fabrics. Since sheep husbandry forms one element in the basis of this business and which also gave great encouragement to this line of manufacturing, we may state in a few paragraphs the situation of this aspect of our subject.

The rearing of sheep and the production of wool has witnessed many fluctuations during the forty five years that have elapsed since the Americans began to devote their

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<sup>1</sup>

Cronise, Wealth of Cal., 602.



CHAPTER II.

GENERAL PRINCIPLES.

Having examined in part the conditions that have  
led to the extraordinary expansion of the textile  
industry, we now turn to a consideration of those industries, which  
are regarded as representative, and in possessing great  
possibilities and importance for the future.

1. Woollen Industry.

One of the earliest founded branches of textile  
industry is the manufacture of woollen fabrics. Since these  
fabrics have been almost the basis of this business  
and which also have great importance in this line of manu-  
facturing, we pay special attention to this branch of the  
of this subject of our subject.

The history of wool and the production of wool has  
witnessed many fluctuations during the last five years  
and have played upon the American people to develop their

attention to it.

During the prosperous period of the Missions many sheep were raised. But abandonment of the Missions caused severe suffering to this industry. Even more than either the horse or cattle branch of live stock raising. These could be turned loose, and would care for themselves. But sheep must have a guardian to protect them. Wild beasts attacked the flocks and soon the sheep would scatter and be destroyed.

Hence when the American occupation set in, very few of the vast herds once belonging to the Missions, were left. Those that still remained had degenerated into a gaunt long legged, half wild sort of beast, which produced little wool.

But not until the American had engaged in the sheep industry did the product of wool become important. The first considerable clip recorded after the occupation was in eighteen hundred and fifty four. The amount that year was one hundred and seventy five thousand pounds.

From that time onward the number of sheep as well as the output of wool steadily increased to eighteen hundred and seventy six, in which year the amount of wool production was fifty six millions five and fifty thousand pounds.

attention to it.

During the operations carried at the various sheep  
 sheep were raised. The abandonment of the various animals  
 severe suffering in this country. Even when the sheep  
 the horses or cattle found at live sheep raising. These  
 could be found loose, and would give for themselves. The  
 sheep could have a tendency to resist them. With some  
 animals the flock and even the sheep would resist and be  
 destroyed.

When the sheep were found, they were found in the  
 of the sheep were found in the flock, were found.  
 These sheep were found and destroyed into a small  
 low range, with the rest of the sheep, which produced little  
 wool.

Not only did the sheep and horses in the sheep  
 industry did the sheep of wool become important. The  
 first year of the sheep was found when the occupation was  
 in a place where the sheep were found. The sheep were found  
 was one hundred and seventy five thousand pounds.  
 From that time onward the number of sheep as well as  
 the value of wool steadily increased to fifteen hundred  
 and seventy five, in which year the amount of wool produced  
 was fifty six million five hundred and fifty thousand pounds.



To this date, however, the owners of sheep enjoyed special advantages. The greater portion of the Sacramento and San Joaquin valleys was unsettled and unfenced; while in the southern counties millions of acres were in the same condition. Most of this land produced good crops of natural grass, upon which the sheep thrived. When the feed grew short in one place the flocks could be easily driven to another. The important point is that abundance of feed was always at hand.

During this halcyon period of vast fortune making in the sheep business, it was frequently the case that the sheep owners did not possess the title to a single acre, used for pasturage. Where rent was paid it was merely nominal, only a cent or two per acre.

In eighteen hundred and seventy six the conditions began to change. The railroad was extended through the valleys, thus opening them to settlement. The advent of the homesteader and the pre-emptor marks the beginning of the end of sheep ranging on free and open land. From that year the amount in the production of wool grew less and less.<sup>1</sup> Consequently we have this situation, that from fifty six

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<sup>1</sup> The decrease in each year's clip serves as a pretty certain indication in the progress of settlement.

To this date, however, the results of these studies  
 special studies. The results of the studies  
 and San Jose's studies are similar and uniform, while  
 in the southern countries of the Americas in the same  
 condition. Most of this land is now a good crop of natural  
 grass, upon which the sheep thrive. When the land is  
 about in one place the land is said to be ready again to be  
 clear. The important point is that the amount of land is  
 always at hand.

During this period of the year the land is  
 the sheep business. It is the property of the land that the  
 sheep business did not produce the same as a single word,  
 and for the sheep. When the land is not ready to be  
 but, only a part of the year.

In addition to the land and the condition of  
 can be changed. The sheep are raised through the year  
 low, the sheep are to be raised. The sheep of the  
 developed and the sheep are to be raised of the  
 end of the year as the sheep are to be raised. The sheep  
 the amount in the production of the sheep are to be raised.  
 Consequently the sheep are to be raised, and the sheep are

The sheep are to be raised, and the sheep are to be raised.  
 certain condition in the production of the sheep.



millions in eighteen hundred and seventy six there was a gradual decrease to thirty one millions pounds in eighteen hundred and eighty seven. But here the turning point came into view, and increase is perceptible.<sup>1</sup> This fact is

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<u>year</u>	<u>pounds</u>	<u>year</u>	<u>pounds</u>
1854	175,000	1875	43,532,223
1855	300,000	1876	56,550,973
1856	600,000	1877	53,110,742
1857	1,110,000	1878	40,862,091
1858	1,428,000	1879	46,903,360
1859	2,378,000	1880	46,074,154
1860	3,055,327	1881	42,076,639
1861	3,721,998	1882	40,529,119
1862	5,990,300	1883	40,848,600
1863	6,268,480	1884	37,415,330
1864	7,923,870	1885	36,561,390
1865	8,949,931	1886	38,509,160
1866	8,532,047	1887	31,564,231
1867	10,288,600	1888	32,569,972
1868	14,232,687	1889	36,760,180
1869	15,413,970	1890	34,854,000
1870	20,072,660	1894	33,000,000
1871	22,187,188	1895	32,000,000
1872	24,255,463		
1873	32,155,169		
1874	39,351,301		

Internal Commerce Report, 1890, p.333. The amount for 1890 and 1894 were obtained from different sources.



...the ...  
...the ...  
...the ...  
...the ...

Year	Amount	Year	Amount
1974	22,241,301	1974	22,241,301
1973	20,125,302	1973	20,125,302
1972	20,125,302	1972	20,125,302
1971	20,125,302	1971	20,125,302
1970	20,125,302	1970	20,125,302
1969	20,125,302	1969	20,125,302
1968	20,125,302	1968	20,125,302
1967	20,125,302	1967	20,125,302
1966	20,125,302	1966	20,125,302
1965	20,125,302	1965	20,125,302
1964	20,125,302	1964	20,125,302
1963	20,125,302	1963	20,125,302
1962	20,125,302	1962	20,125,302
1961	20,125,302	1961	20,125,302
1960	20,125,302	1960	20,125,302
1959	20,125,302	1959	20,125,302
1958	20,125,302	1958	20,125,302
1957	20,125,302	1957	20,125,302
1956	20,125,302	1956	20,125,302
1955	20,125,302	1955	20,125,302
1954	20,125,302	1954	20,125,302
1953	20,125,302	1953	20,125,302
1952	20,125,302	1952	20,125,302
1951	20,125,302	1951	20,125,302
1950	20,125,302	1950	20,125,302
1949	20,125,302	1949	20,125,302
1948	20,125,302	1948	20,125,302
1947	20,125,302	1947	20,125,302
1946	20,125,302	1946	20,125,302
1945	20,125,302	1945	20,125,302
1944	20,125,302	1944	20,125,302
1943	20,125,302	1943	20,125,302
1942	20,125,302	1942	20,125,302
1941	20,125,302	1941	20,125,302
1940	20,125,302	1940	20,125,302
1939	20,125,302	1939	20,125,302
1938	20,125,302	1938	20,125,302
1937	20,125,302	1937	20,125,302
1936	20,125,302	1936	20,125,302
1935	20,125,302	1935	20,125,302
1934	20,125,302	1934	20,125,302
1933	20,125,302	1933	20,125,302
1932	20,125,302	1932	20,125,302
1931	20,125,302	1931	20,125,302
1930	20,125,302	1930	20,125,302
1929	20,125,302	1929	20,125,302
1928	20,125,302	1928	20,125,302
1927	20,125,302	1927	20,125,302
1926	20,125,302	1926	20,125,302
1925	20,125,302	1925	20,125,302
1924	20,125,302	1924	20,125,302
1923	20,125,302	1923	20,125,302
1922	20,125,302	1922	20,125,302
1921	20,125,302	1921	20,125,302
1920	20,125,302	1920	20,125,302
1919	20,125,302	1919	20,125,302
1918	20,125,302	1918	20,125,302
1917	20,125,302	1917	20,125,302
1916	20,125,302	1916	20,125,302
1915	20,125,302	1915	20,125,302
1914	20,125,302	1914	20,125,302
1913	20,125,302	1913	20,125,302
1912	20,125,302	1912	20,125,302
1911	20,125,302	1911	20,125,302
1910	20,125,302	1910	20,125,302
1909	20,125,302	1909	20,125,302
1908	20,125,302	1908	20,125,302
1907	20,125,302	1907	20,125,302
1906	20,125,302	1906	20,125,302
1905	20,125,302	1905	20,125,302
1904	20,125,302	1904	20,125,302
1903	20,125,302	1903	20,125,302
1902	20,125,302	1902	20,125,302
1901	20,125,302	1901	20,125,302
1900	20,125,302	1900	20,125,302

Information furnished by ...  
For 1974 and 1975 ...

largely due to improved methods of caring for sheep.<sup>1</sup>

The breaking up of the great range has produced an opposite effect to that anticipated by those who were connected with it. The best grades have been introduced, so that the business, to the extent of this phase, has been placed on a firm basis of prosperity.<sup>2</sup> Such is in outline the production of wool in California. In Oregon, however, as it is today this branch of live stock raising constitutes one of the great staples in product. Still its history is similar to that of California.<sup>3</sup> Nothing was done of any note

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<sup>1</sup> The effect of these methods are seen in the following statements. Careful husbandry has supplanted nomadic practices. The annual clip in U.S. has, therefore, increased three fold in last 50 years. In Australia, ten fold. In South America nine fold. In British possessions of South Africa the increase has been five fold. This outside wool has forced down the price of the best American wool. No tariff has or can stay this cause and effect. From within the influence is exerted by the clips of nomadic flocks west of Miss. River because the owners of sheep pay little or no rental. California has not been able to hold her own against this competition and her clip has gradually fallen from 56,550,000 pounds in 1876 to 33,000,000 pounds today. (Jan. 26, 1894) At about this amount it has stood for the last seven years. Wool and Manufacture, 1894, p 6.

<sup>2</sup> San Francisco Chronicle, January 1, 1892.

<sup>3</sup> 1860 Oregon produced 200,000 pounds of wool.  
1870 " " 1,500,000

1880 More than eight millions pounds were exported.  
Baneroff, Hist. of Cal., VII, 59 - 61. International Commerce Report, p. 829-33.



1. The effect of these methods was seen in the following

The President up at the Great House has produced an

opposite effect to that anticipated by those who were con-

vinced that it. The best results have been introduced, as

that the business, to the extent of this House, has been

placed on a firm basis of prosperity. Such is in evidence

the production of work in California. In Oregon, however, as

it is today this season of live stock raising activities

one of the great staples in production. Still the history is

similar to that of California. Nothing was done at any time

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2. The effect of these methods was seen in the following

ing statement. General testimony has been given recently

production. The annual crop in 1912 was, however, increased

three fold in fact in 1912. In California, the yield in

South America nine fold. In British possessions of South

Africa the increase has been five fold. This outside world

has passed down the value of the most American wool. The per-

cent has on our own wool this year was fifteen. From 1911 the

influence is exerted by the value of American wool was of

value. Since 1911 the value of wool has risen to 100 per cent

higher. California has not been able to hold her own against

this competition and her crop has been reduced from 1911

to 1912. The value of wool has risen to 100 per cent. The

value of wool has risen to 100 per cent. The value of wool

3. The effect of these methods was seen in the following

1912. The value of wool has risen to 100 per cent. The

value of wool has risen to 100 per cent. The value of wool

value of wool has risen to 100 per cent. The value of wool

value of wool has risen to 100 per cent. The value of wool



until the Americans took hold of the business. Washington seems to have had more favorable circumstances under which to begin this phase of her stock raising.<sup>1</sup>

#### b. Woolen Mills.

In the section just preceding the condition of the source from which the Pacific Coast draws its raw material in woolen manufacture is stated. We now turn to the making of this into fabrics.

The first textile fabrics made in California, or on the coast as to that, were the coarse rough blankets, at the missions. These took the place of the scanty fibre weft of the unconverted Indians. For nearly fifty years, while the missions were prosperous under the dominion of Spain and the management of the Franciscan Friars, wool was thus utilized. But on the fall of these institutions this manufacture disappeared.<sup>2</sup>

However, the first mill established for making woolen fabrics is due to Mormon enterprise. In Utah, then, Pacific

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<sup>1</sup> Internal Commerce Report, p 995. The accompanying table shows the amounts of wool produced.

1865	83 83,326	1887	2,230,415
1875	396,567	1888	4,760,314
1880	2,117,064	1889	4,513,267
1885	6,402,563	1890	4,389,480.
1886	5,938,220		

until the American took half of the business. Looking  
around he saw that some favorable circumstances under which  
to begin this phase of his plans existed.<sup>1</sup>  
D. Weston Miller.

In the section just preceding the conclusion of the  
narrative from which the writer drew its present  
in another paragraph it is stated. He was sure to the writer  
of this last section.

The first section of this book is devoted, as on  
the part as to that, with the same good objects, as  
the previous. There are the same of the same type with  
of the described section. But nearly fifty years, with  
the section are composed under the heading of this  
and the management of the business system, and the same  
defined. But no the fall of some conditions this man-  
agement is necessary.<sup>2</sup>

However, the first will be considered for making certain  
period is due to known conditions in 1920, 1921, 1922, 1923,  
-----  
Internal Committee Report, 1922. The following  
ing table shows the results of work recorded.

1920	2,475,000	1921	4,100,000
1921	2,400,000	1922	4,700,000
1922	2,417,000	1923	4,757,000
1923	2,400,000	1924	4,100,000
1924	2,475,000		



Coast manufactures take their beginning. There they had a good supply of skilful and steady laborers. Being protected also by the great cost of exporting wool and importing clothing over one thousand miles of wagon road, the Mormons built a mill at West Jordan in eighteen hundred and fifty three.<sup>1</sup>

But for the first ventures in woolen manufacturing in the three states here in mind we must go to Oregon. The first steps in this direction were taken in eighteen hundred and fifty four, when a carding machine was erected at Albany. In the early spring of the next year machinery was erected in Polk county for spinning, weaving, dyeing and dressing woolen cloths. It was not, however, until April, eighteen hundred and fifty six that an association was formed at Salem for the purpose of erecting a woolen manufactory.

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2

page 21. San Francisco Chronicle, Jan. 1, 1892, p 5.  
Baneroff, Hist. of Cal., VII, 83.

<sup>1</sup> It is worthy to note, however, that Utah had one establishment in 1860; with 70 spindles; 3 in 1870, with 1020 spindles; one in 1880 with 432 spindles. The number of looms in 1870 was 11; in 1880, 14. The number of employees in 1860 was 7; in 1870, 16; in 1880, 29. They were as regards sex;

	Male 1860	1870	1880
Males	4	10	16
Females	3	2	8
Youths and Children.	-	4	5

Census Report, 1880.



Coast communities take their to land. There they had a  
 good supply of wharf and steady industry. Being protected  
 also by the great sea of expanding road and limited with  
 the over the mountain side to begin with, the mountain side  
 a still of West Jordan in highest mountain and fifty years.  
 But for the river venture to water construction in  
 the river state was in mind as well as to be done. The  
 river side in this direction was done to sixteen hundred  
 and fifty four, when a certain number was noted as already  
 in the early spring of the next year meeting was decided  
 in this country for a certain, meeting, which was decided  
 meeting side. It was not, however, until April, eighteen  
 hundred and fifty six that an association was formed of  
 sailors for the purpose of meeting a water construction.

Page 11. San Francisco Chronicle, Jan. 1, 1857, p. 8.  
 December, 1857, Vol. VII, No. 1.

It is worthy to note, however, that that was the  
 foundation to 1850; with 1850; 5 in 1850, with 1850  
 expanded; one in 1850 with 1850. The number of  
 in 1850 was 1; in 1850, 14. The number of employed in 1850  
 was 7; in 1850, 10; in 1850, 22. The year was 1850; 1850.

Male 1850	Male 1850	Male 1850
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16
17	17	17
18	18	18
19	19	19
20	20	20
21	21	21
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82	82	82
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84	84	84
85	85	85
86	86	86
87	87	87
88	88	88
89	89	89
90	90	90
91	91	91
92	92	92
93	93	93
94	94	94
95	95	95
96	96	96
97	97	97
98	98	98
99	99	99
100	100	100

General Report, 1857.

This was known as the Willamette Woolen Mills<sup>1</sup> and was the first mill of any importance of the Pacific Coast. Other mills were, from time to time, founded. But many have been forced to abandon further operation.

<sup>1</sup> The Willamette Mills began operation in 1857 with two sets of woolen machinery. The prime mover of this enterprise was James Watt. William Rector, superintendent of construction, was sent East to purchase the requisite machinery. The company purchased the right of way to bring the water of the Santiam River to Salem. This they did by means of a canal, which makes this spot one of the best water powers on the Pacific Coast. In the last months of the year the factory was ready for business and the completion was celebrated by the firing of a cannon. \$75,000 was thus invested. For some time the mill returned little or no profit. It was, however, a subject of much ridicule on the part of the surrounding community and a source of vexation to the stockholders. But perseverance and skilful management made the enterprise a success in a few years. Then the company's stock rose from a heavy discount to 1100 per cent premium. In 1860 the capacity of the mills was doubled, but after several years more of prosperity the mills burned to the ground in May, 1876. Kittell, Commerce and Industries, 445. Baneroff, Hist. of Oregon, I; II, 333, 731-732. The goods manufactured were flannels, blankets and cassimeres. Other important mills were established at Oregon City in 1864; at Brownsville in 1875, still others, but of minor importance at Ashland, and Dayton in 1872. How many mills in Oregon today I cannot say. The only report accessible is the 18th Report of Chamber of Commerce of Portland. This is for 1892 and gives the following.

	<u>Employees</u>	<u>Product value.</u>
1890	360	\$280,000
1891	397	\$ 885,000
1892	395	\$880,000.







Chronologically, California comes next. In eighteen hundred and fifty eight the first California mill was built. This was a time when industrial skill was scarce and extravagantly high, when raw material was of an inferior quality; when money was loaned at exorbitant interest. In a word the manufacturer had to struggle against all the difficulties incident to starting a new industry.

In 1861 it became evident that the armies drawn from the productive industries of the nation had to be clothed and equipped; Eastern cities were enlarging old mills and building new ones. These were hurried into operation. Every card and spindle and loom was taxed to its utmost capacity. During this period the Pacific Coast woolen mills began to reap the benefits which the energy and sorely taxed patience of their promoters so well deserved.<sup>1</sup>

The first woolen mill was the Pioneer. The census, however, of eighteen hundred and eighty enumerates nine mills. But since then the number of mills and their production have increased. These mills consumed a little more than one-fifth of the wool product, but conditions are changing. Not many

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<sup>1</sup> Hittell, Pac. Coast Indus., 447.

Chronologically, California comes last. In 1846, the United States acquired the territory which now comprises the State of California. This was a time when California was a vast and empty wilderness, when the only inhabitants were a few scattered Indians. When mining was found at San Francisco, in 1847, the great migration of Americans to California began. The first great migration was in 1848, when James W. Wadsworth and his party discovered gold at Sutter's Creek. This discovery led to the great gold rush of 1849, when tens of thousands of Americans flocked to California in search of fortune.

In 1850, California was admitted to the Union as the thirty-first State. The great migration of Americans to California continued, and by 1855, the population of the State had increased to over 100,000. The great gold rush of 1849 had led to the discovery of gold in many other parts of the State, and the mining industry had become one of the most important in the State. The great migration of Americans to California had also led to the discovery of many other valuable resources, such as silver, copper, and iron. The State of California had become a great source of wealth for the United States.

The first section of the Constitution of the State of California was adopted in 1849. This section provided for the establishment of a State government, and for the election of a State Assembly and a State Senate. The first session of the State Assembly was held in 1850, and the first session of the State Senate was held in 1851. The State of California has since then been governed by a State government, and has become one of the most important States in the United States.



mills are in operation, but the quality of their goods has been improved.<sup>1</sup>

Of course Washington took up the matter of woolen

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<sup>1</sup> Bancroft, Hist. of Cal., VII, 88. Outline history of the pioneer Woolen Mills.

The project started in the mind of Mr. Peck, who gave his attention to the subject and satisfied himself that the wool yield of coast would continue to increase rapidly, that the necessity of exporting the bulk of the clip would give great advantage to San Francisco manufacturer in quality and price of his wool and that the weaving of coarse woolen goods must be a source of profit in a few years.

The mills were erected in 1858 at Black Point in the northwest part of San Francisco. The buildings were of wood and at same time were spacious and convenient. They were, too, filled with costly machinery, which had been carefully selected from eastern foundaries. The mills began to work in 1859. After having run a few years the mills burned down, Oct., 1861. At this time the market in that condition in which the manufacturer was able to realize a profit from the operation of the mills.

When the mills burned they were possessed with 4 sets of cards and 16 looms. The proprietors set about immediately to rebuild. The buildings were of brick, more spacious and were constructed with idea of greater safety. In December, however, of 1861 a company was incorporated to purchase the business. The capital was at first \$100,000, but soon after it was increased to \$500,000. The new mill began operation in June, 1862 with 9 sets of cards, 31 looms and 2,800 spindles. For sometime the entire capacity of the mills was needed to supply the demand on the coast.

In a few years this mill with the Mission woolen mills drove out of the market all those goods manufactured elsewhere,, of the kind they made. The home demand was good and it was a prosperous day for the mills.

In 1881 the mills occupied a four story brick building 60 feet by 400 ft. They had 38 sets of cards, 130 looms, and 12,000 spindles.

The mills manufactured blankets, tweeds, cassimeres, dorsekins and other woolen goods.

...and the ... ..

[illegible]

It was a tremendous day for the girls.  
 Above, of the kind they made. The team seemed to grow old.  
 drove out of the market all those goods mentioned in the  
 In a few years this will be the situation. What was it?

The mill manufactured aluminum, brass, stainless steel, and other various metals.

In 1961 the mill occupied a four story brick building  
on West 40th St., just west of 1st Avenue, and  
had 12,000 sq. ft. floor area.



manufacture after Oregon and California.

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Their product in 1866 was 30,000 pairs of blankets, 60,000 yards of broadcloth, tweeds, cassimeres, 375,000 yards of flannel. The mills consumed 1,500,000 pounds of fine wool. In 1867 40,000 pairs of blankets were made, 100,000 yards of broadcloth, tweeds and cassimeres. 300,000 yards of flannel. Consumed 1,600,000 pounds of wool. But later it is found that the average yearly consumption was about 3,500,000 pounds of wool and 100,000 pounds of cotton. The material cost about \$600,000 while the value of their product was about \$1,500,000. Coal cost about \$70 a day, water \$700 a month. Employ about 800 hands, of whom 500 were white.

The history of each woollen mill is not very different from this, but whether or not the mill is now in operation I cannot tell. Cronise, Wealth of Cal., 440; Hittell, Pac. Coast Ind., 440-441; Bancroft, Hist. of Cal., VII, 88.

The following table will give the situation in reference to the industry from 1860 to 1890.

Number of establishments.				
State	1860	1870	1880	1890
Oregon	1	6	10	6
Cal.	1	5	9	15
Wash.	-	-	1	1
Total	2	11	20	22
Number of employees.				
State	1860	1870	1880	1890
Cal.	60	659	823	1,379
Oregon	30	173	216	412
Wash.	--	---	29	not given.
Total	90	832	1068	1,791
Sex				
State	Male	Female	M.	Fe.
Cal.	40	20	564	31
Oregon	27	3	125	7
Wash.	--	-	---	-
Total	67	23	709	38
Capital.				
State	1860	1870	1880	1890
Cal.	\$100,000	\$1,735,000	1,676,500	2,295,950.
Oregon	70,000	380,500	566,800	1,350,585
Wash.	---	---	40,000	?
Total	\$170,000	2,165,500	2,283,300	4,346,535.





The legislature of the Territory passed an act, January eighteen hundred and sixty incorporating the Puget Sound Woolen Manufacturing Company, of Tumwater, but nothing ever came of it except the name. This was suggestive of what ought to be done if no more. Again, five years later, the Washington Woolen Manufacturing Company of Thurston county was incorporated with results as in the other instance. Other attempts were made but all equally unsuccessful.<sup>1</sup>

Wages.				
State	1860	1870	1880	1890
Cal.	\$33,600	\$230,200	\$334,318	\$331,718
Oregon	16,200	112,113	86,088	175,313
Wash.	---	---	52,000	---
Total	\$49,800	\$342,313	\$472,396	\$507,031
Cost of Material.				
State	1860	1870	1880	1890
Cal.	\$50,000	\$608,141	997,539	828,771
Oregon	37,600	221,645	227,486	327,252
Wash.	---	---	52,000	---
Total	\$87,600	\$829,786	\$1,277,025	\$1,156,023
value of Product.				
State	1860	1870	1880	1890
Cal.	\$150,000	\$1,102,759	\$1,634,858	\$1,428,203
Oregon	85,000	492,957	549,030	614,932
Wash.	---	---	70,000	---
Total	\$235,000	\$1,595,616	\$2,253,888	\$2,043,135

8th Census - Manufactures.

9th "

Ind. and Wealth, Woolen

and Manufacture - 1894. p.52-55.

<sup>1</sup>

Baneroff, Hist. of Wash, Idaho, Mont., p. 350 - 351.  
There is at least one woolen mill in Washington today, which employs 75 men. Seattle Post-Intelligence, Sept. 27, 1895.





## 2. Cotton Industry.

### a) Production of Cotton.

This industry is selected because it is one that is likely to become a very important one for the Coast. It is claimed by one party that the soil is not becoming exhausted of those elements that produce good and abundant wheat. By another party it is contended that exhaustion is taking place by the continuous cropping of the land to wheat, and in order to secure the best results in wheat growing, some alternative crop must be planted. Cotton, it is said, is one of the most important substitutes.<sup>1</sup>

Cotton was indigenous to Mexico, or at least cultivated by the Aztecs before the Spanish Conquest. It is still extensively grown there, but is of the same kind that it was four centuries ago.<sup>2</sup> It is due to the Spaniards, however, that it was introduced into California, where one of the mission fathers cultivated it to some extent and for a short time at Paula.<sup>3</sup> But subsequent planters brought their knowledge to

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<sup>1</sup> Earlier attitudes on this point are expressed in Transactions of Cal. Agri. Society, 1877. Later, in Tobin's Labor Report, p.24. "Increased attention is being given to this staple in Cal." Commercial Herald, Jan. 13, 1881, p.8.

<sup>2</sup> Hittell, Pac. Coast Ind. 283 - 284.

<sup>3</sup> Respecting special agriculture products it appears that only cotton raising was attempted without success at San Gabriel in 1808. Bancroft, Hist. of Cal., II, 177.

## 2. Cotton Industry.

## a) Production of Cotton.

This industry is selected because it is one that is likely to become a very important one for the future. It is claimed by one party that the soil is not becoming exhausted of those elements that produce good and abundant wheat. By another party it is contended that exhaustion is taking place by the continuous cropping of the land for wheat, and in view of the fact that the best results in wheat growing, some fifteen to twenty years ago, were obtained by the use of the active crop, it is said, is one of the most important industries.

Cotton was introduced to America, not as a cash crop,

used in the future before the Spanish conquest. It is still extensively grown today, and it is the fact that it was from America and not from the East, that it is said to have been introduced into the United States, where one of the most important industries is now being developed and for a short time at least, has been producing a large amount of wealth.

For many years the cotton industry has been one of the most important in the United States, and it is said to have been introduced into the United States, where one of the most important industries is now being developed and for a short time at least, has been producing a large amount of wealth.

It is said that the cotton industry was introduced into the United States, where one of the most important industries is now being developed and for a short time at least, has been producing a large amount of wealth.

Missell, Geo. D. and Geo. D. - 1904.

It is said that the cotton industry was introduced into the United States, where one of the most important industries is now being developed and for a short time at least, has been producing a large amount of wealth.



bear<sup>1</sup> upon the industry and proved beyond a doubt that cotton could be successfully and profitably produced in California.<sup>2</sup> As early as eighteen hundred and fifty six it was demonstrated by growers that cotton was a thrifty growing plant in this State. In that year the California State Agricultural Society offered prizes for the best cotton produced.<sup>3</sup> During the Civil War when cotton commanded a high price the State Legislature offered premiums for the production of cotton as follows: For the first one hundred bales, each weighing three hundred pounds, three thousand dollars; for the same quantity produced the first, second and third succeeding years, two thousand, one thousand and five hundred respectively.<sup>4</sup> This move on the part of the state stimulated and encouraged the growing of cotton, thus causing a large acreage to be planted in the

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<sup>1</sup> Bancroft, Hist. of Cal., VII, 30 - 31.

<sup>2</sup> Tobin, Labor Report, p. 22.

<sup>3</sup> The 3rd fair of the Cal. Agri. Soc. was held at San Jose, Oct., 1856. Premiums offered for cotton were, "For the best acre of cotton, \$75; for the 2nd best acre of cotton, \$25." Transactions of Cal. St. Agri. Soc., 1872, p. 249.

<sup>4</sup> Bancroft, Hist. of Cal., II, 177; Overland Monthly, VI, 326 - 335; XIII, 18-25.

body upon the industry and proved beyond a doubt that cotton  
could be successfully and profitably produced in California.  
As early as 1850 cotton was raised and fifty six it was successful-  
ed by growers that cotton was a simply growing plant in this  
State. In that year the California State Agricultural Society  
offered prizes for the best cotton produced. During the 1850s  
the State cotton averaged a high price for State production  
offered prizes for the production of cotton as follows: for  
the first one hundred bales, each with three bales  
valued, three hundred dollars; for the next hundred, two hun-  
dred dollars; and third hundred bales, one hundred  
dollars and five cents respectively. This was in the  
year of the State's earliest and successful growing of  
cotton, thus showing a large scope to be found in the

<sup>1</sup> Bureau, Bull. of Cal., Vol. 20 - 21.

<sup>2</sup> Ibid., 1850, 1851, 1852.

<sup>3</sup> The first year of the Cal. Agr. Soc. was held at San  
Jose, 1850. The prize offered for cotton was "for the  
best crop of cotton, 1850; for the best crop of cotton,  
1851." Transactions of Cal. Agr. Soc., 1850, 1851.

<sup>4</sup> Bureau, Bull. of Cal., Vol. 20, 1850, 1851, 1852.  
Vol. 20 - 21; 1850, 1851, 1852.



various interior valleys of the state. The first prize went to Los Angeles for 108 acres of cotton. The other prizes were divided among Fresno, Kern, and Merced counties.

In eighteen hundred and seventy three, twenty two thousand eight hundred and eighty six pounds of California cotton were shipped to Liverpool and found ready sale. In eighteen hundred and seventy four one hundred and sixty acres along the Sacramento River bottom yielded thirty six thousand pounds. Besides this there were several other tracts of land planted. These aggregated nearly six hundred acres. The crop from this land proved a success. The acreage in eighteen hundred and seventy five was still larger. At that time there was a lull in enthusiasm for cotton production. There was no ready market<sup>1</sup> for cotton, and storage, insurance, commission and other incidental expenses ate up the producer's profits. Wheat was then commanding a high price and ready money, thus the farmer naturally turned attention to wheat growing. This was the situation until eighteen hundred and eighty nine

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<sup>1</sup> San Francisco Chronicle, Jan. 1, 1892; Internal Commerce Report, 1890, p. 330.





when interest in cotton production was revived,<sup>1</sup> and much interest is at present manifested in the possibilities of cotton culture in California. Except the competition with Japan<sup>2</sup> the outlook is fairly bright.

#### b. Cotton Manufacture.

The first mill for the manufacture of cotton fabrics on the Pacific Coast was erected by W.H. Rector and Son at Clinton station, East Oakland, California, in eighteen hundred and sixty five.<sup>3</sup> Most of the raw material used, however, was imported from the East by steamers at twenty five cents, in gold, a pound. In February, eighteen hundred and sixty seven the mill was enlarged and the products diversified. But the proprietors found little or no profit in the enterprise, consequently in eighteen hundred and sixty eight<sup>4</sup> a proposi-

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<sup>1</sup> Tobin, Labor Report, pp. 23-24. Tried as a matter of curiosity by American farmers in Cal. between 1850 and 1870 but not as encouraging as might be, but it is now on the rise. Hittell, Pac. Coast Ind., 284.

<sup>2</sup> San Francisco Call, Jan. 24, 1896.

<sup>3</sup> Organized Aug., 1865. Capital, \$100,000. Bangeroft, Hist. of Cal., VII, 88-89; Tobin, Labor Report, 18.

<sup>4</sup> To Jan. 1868 the mill made shirting, sheeting, and drills with a species of wool and cotton tweeds. In the same month of that year the capital was increased to \$200,000 with the intention to procure machinery for making grain bags. The buildings of the Oakland Cotton Manufacturing Company were two story brick, 90 by 48, two wings 20 by 30 each, contained





tion was accepted to convert the mill into a jute manufactory, which has recently had to close its doors.<sup>1</sup>

For fifteen years no attempt was made to revive this important industry in California. But in eighteen hundred and eighty three, an enterprising Scotchman, Mr. William Rutherford, undertook the work of starting a cotton mill in the immediate vicinity of the one which had failed. He knew the business of cotton manufacturing thoroughly, having been brought up to it from his early years. He also possessed capital which he was willing to venture in the enterprise. The success of the California Cotton Mills is due in the main, to three factors, namely, skill, experience, capital.<sup>2</sup> The mills have been

35 looms, employed 100 men and women. Cronise, Wealth of Cal., p 151-152, 605.

<sup>1</sup> San Francisco Call, Dec. 17, 1895, p13.

<sup>2</sup> Tobin, Labor Report, p 19. The 8 buildings cover 6 acres of ground, and are of brick, one story high. They were planned by Mr. Rutherford himself. The mills were set in motion in 1885, and are owned and controlled by a joint stock company having a capital of \$600,000 of which \$350,000 is paid up.

The number of cotton spindles operated is 4000 and jute spindles 1,020. All the machinery is of the latest and most improved pattern and cost about \$200,000.

The mills manufacture cotton sail, sewing seine, and wrapping twines, carpets, horse blankets, sail cloth and various kinds of rope. In 1889 manufactured 200 tons of small twine. Supply market with its specialties for all states and territories along the coast.

Total amount of production for the year ending July 5,

tion was accepted to convert the mill into a pulp mill, which was finally put in place in 1905.

The first year of operation was used to revise the in-

herent industry in California. But in 1905, the mill was

fully open, and the first year of operation was used to revise the in-

herent industry in California. But in 1905, the mill was

fully open, and the first year of operation was used to revise the in-

herent industry in California. But in 1905, the mill was

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fully open, and the first year of operation was used to revise the in-

herent industry in California. But in 1905, the mill was

fully open, and the first year of operation was used to revise the in-



a success from the first.<sup>1</sup>

### 3. Iron Industry.

#### a) Iron production.

California, Oregon and Washington contain deposits of iron of sufficient quantity to make its mining and preparation for use a very important branch of the iron business of this Coast.

Washington is perhaps the leading state of the Pacific Slope in this respect. Already is Seattle, with her nine active foundries called the Pittsburg of the West.<sup>2</sup>

As in the woolen and other industries, so in the smelting of iron ore does Utah receive the credit of having taken the first step. High cost of transportation, the small value of iron in proportion to its weight, and the straitened circumstances of the Mormons led them to attempt to obtain at home the needed supply. Numerous furnaces were erected, but generally without satisfactory results. But when the Union Pacific railroad reached them in eighteen hundred and sixty

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1889 was \$236,955.18. Raw material in cotton cost \$125,701.47. Jute, \$29,875.05. Coal and oil, \$16,891.51. Wages, \$71,004.02. The production in 1886 was \$128,908.25. Comparing with 1889 we see an increase of more than double in three years. Tobin, Labor Report. Internal Commerce Report, 1890. 393-394.

<sup>1</sup> Transactions of Cal. St. Agri. Soc., 1889, p 183.

<sup>2</sup> Internal Commerce Report, 1890. 1033.

a success from the first.

3. Iron Industry.

4. Iron Production.

Delaware, Oregon and Washington become leaders of iron of additional capacity to meet the rising and growing demand for a very important branch of the iron industry of this country.

Washington is perhaps the leading state of the Pacific Slope in this respect. Already in 1911, with two mine and five furnaces added, the production of the State.

As in the case of other industries, so in the case of iron the State has been the benefit of having taken the first step. High cost of transportation, the small volume of iron in proportion to the output, and the advanced stage of development of the industry had been an attempt to obtain it from the outside supply. Numerous furnaces were erected, the generally efficient manufacturing facilities. But when the Pacific Railway reached there in 1911 the output was six times

1911 was 2,200,000 lbs. but increased in 1912 to 4,700,000 lbs. 1913, 5,700,000 lbs. Coal and oil, \$10,000,000. Wages, \$71,000,000. The production in 1913 was \$12,000,000. The production in 1914 was an increase of more than double in 1913. Total, 1914, 10,000,000 lbs. Internal Commerce Report, 1914, 1915-1916.

A. Transactions of the U.S. Steel Corp., 1915, p. 183.  
B. Internal Commerce Report, 1914, 1915.



nine efforts in this line of work almost entirely ceased. They could now obtain the desired amount at reasonable rates and at the same time had an outlet for their agricultural produce.<sup>1</sup>

The next state to take up this phase of the iron business was Oregon. In eighteen hundred and sixty five the Oregon Iron Company at Oswego had an establishment on the Willamette river near that point. The first shipment of the product of this company's work consisted of fifty tons of iron which was carried to San Francisco in eighteen hundred and sixty seven.<sup>2</sup>

Washington soon after took up this kind of work near Port Townsend and has been in operation since February, eighteen hundred and eighty one under the name of the Puget Sound Iron Company.<sup>3</sup>

The manufacture of pig iron in California takes its beginning in the early eighties. Although the deposits have been known for many years, still the delay in opening and working of them has been a matter of dollars and cents. As long as the consumer of pig iron could obtain it cheaper from abroad than it could be produced at home he did it. But in spite of

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<sup>1</sup> Hittell, Pac. Coast Industries, p 310.

<sup>2</sup> Bancroft, Hist. of Oregon, II, 733-735;  
Hittell, Pac. Coast Ind. 311; Int. Com. 401.

<sup>3</sup> Hittell, Pac. Coast Ind. 311; Int. Com., 401.

nine efforts in this line of work almost entirely ceased. They could not obtain the desired amount of reasonable prices and at the same time had no outlet for their agricultural produce.<sup>1</sup>

The next step was to take up the question of the iron business. In 1870, the business was in a position to ship five thousand tons of iron ore from Germany to England and an establishment on the Williams River near that point. The first shipment of the product of this company's work consisted of fifty tons of iron which was carried to San Francisco in eighteen hundred and fifty seven.

Washington and other local iron ore companies were not yet in operation and the business was in operation since 1870, eight hundred and fifty one under the name of the Iron Ore Company.<sup>2</sup>

The management of the Iron Ore Company was the same as in the early eighties. Although the deposits have been known for many years, still the delay in opening and working of them has been a matter of difficulty and delay. As long as the management of the Iron Ore Company is the same, it is not to be expected that it could be produced at home as it is, but in view of

<sup>1</sup> History, Iron Ore Company, p. 115.

<sup>2</sup> Summary, Iron Ore Company, p. 115-116.  
History, Iron Ore Company, p. 115-116.

<sup>3</sup> History, Iron Ore Company, p. 115-116.



this situation the California and Steel Company.<sup>1</sup> was incorporated in eighteen hundred and eighty one. For a few years it worked the iron ore into iron, but the decline of mining was a partial cause of its cessation. The question Why the decline of iron production in California? suggests itself. Although iron ore exists in many of the counties of the State, and sometimes in extensive deposits, yet the absence of a suitable coal for blast furnace work prevents its being utilized. In eighteen hundred and ninety four only a small quantity was shipped to San Francisco, and so far no record is made of any worked in the last year.<sup>2</sup>

#### b) Iron Manufacture.

The principal processes in use are the casting and rolling of iron; the construction of stamp mills, hoisting works

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<sup>1</sup> Capital, \$2,675,000 in 26,750 shares. Subscribed and paid up capital, \$1,601,000. Destroyed by fire, but immediately rebuilt. It did not prove a great success. It produced in 1882, 2000 tons of iron; 1883, 5000 tons; 1884, 2,200 tons; 1885, 1750 tons. For the twenty-five years, ending Dec. 31, 1888 the imports of pig iron at San Francisco amounted to 348,112 tons. Of this, 20,971 tons were from Europe, 2165 tons from the Atlantic States. See Hittell, Pac. Coast Ind., pp. 310-314; Bancroft, Hist. of Cal., VII, 94; Int. Com., 401-402.

<sup>2</sup> San Francisco Call, Dec. 25, 1895, p. 28. Production of iron ore in 1894 was 200 tons, valued at \$1,500,000; in '93, \$2,000,000.





and pumps for mines, of steam engines and boilers for mines, factories, and steamships; of locomotives for railroads; of castings for houses, agricultural and other machinery, and kitchen furniture; the making of wire, wire rope, wire cloth, other wire wares, saws, edged tools and cutlery.

Notwithstanding the high price of labor, dearness of coal and the fact that until recently most of the material used in the manufacture of iron has been imported, the growth of this branch of industry has been remarkable. Including all its departments the gross value for eighteen hundred and eighty one was near twenty million dollars as against about six millions in eighteen hundred and seventy one. As no figures for the Coast for a later period have been obtained, a statement relative to an estimate in San Francisco will suffice. In eighteen hundred and ninety four manufacture amounted to about five million dollars<sup>1</sup>.

It may be said that the iron working trade has long been an important and prominent industry of San Francisco. There are several reasons for it, and probably chief among them is the fact that San Francisco's isolation from the great manufacturing centres of the country for so many years threw the

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<sup>1</sup> Hittell, Pac. Coast Ind., pp 652-654.

and more for wire, of steel, galvanized and soft for wire,  
 twisted, and aluminum; of locomotives for railroads; of  
 machinery for houses, agricultural and other machinery, and  
 kitchen furniture; the making of wire, wire rope, wire cloth,  
 other wire mesh, saws, sheet metal and roofing.

Representing the high order of labor, a number of  
 good and the fact that until recently most of the material  
 used in the manufacture of iron was home produced, the growth  
 of this branch of industry has been remarkable. Included in  
 its department the gross value for shipment amounted to  
 nearly one hundred million dollars in 1914, and in 1915  
 six millions in 1916, and in 1917 and 1918, as no fig-  
 ures for the United States have been published, a  
 statement relative to an estimate in San Francisco will suf-  
 fice. In 1916, 1917 and 1918, four million dollars were  
 to about five million dollars.

It may be said that the iron working trade has been  
 an important and prominent industry of San Francisco. There  
 are several reasons for it, and probably about seven there is  
 the fact that San Francisco's isolation from the great man-  
 ufacturing centers of the country has in many ways made the



people largely upon their own resources. This same cause may be assigned as the motive which occasioned the establishment of many of the extensive mechanical lines of industry in San Francisco as well as of the Coast at the present time.<sup>1</sup>

The growth, however, of the iron interest on the Coast has depended and must still, to some extent, depend upon the demand for mining machinery. It was not until the inventive genius of the American devised the great mills for the mines that the first important and decisive step in advance in the foundry business was taken. And when the skilled workmen had been introduced into the Coast foundries some of the finest and best machinery of the world, and in mining machinery she takes the lead, has been turned out from her shops.

The only demand of any consequence in the early period of iron manufacture was for mining machinery. But the foundry owners saw that they needed a wider market for development, hence their efforts to extend their operations. As a result they can and do now supply most of the Coast's needs in this regard.

Another important point is, that the enormous demand for machinery and the high price it commanded induced eastern

<sup>1</sup> San Francisco Chronicle, Dec. 29, 1895, p 24.

people largely upon their own resources. This same policy may be applied as the motive which actuated the establishment of many of the extensive manufacturing lines of industry in America. It was not until the middle of the nineteenth century that the United States began to take an active part in the world's commerce.

The growth, however, of the iron industry in the United States has depended and must still, to some extent, depend upon the demand for mining machinery. It was not until the invention of the American system of the Great Britain for the mines that the first important and decisive step in advance in the history of the iron industry was taken. And from the middle of the nineteenth century the Great Britain has been introduced into the Great Britain as one of the most important machinery of the world, and in mining machinery has taken the lead, and has been followed by the United States.

The only demand of any consequence in the early period of iron manufacturing was for mining machinery. But the growth of the iron industry has since needed a great impetus for development, and large efforts to extend their operations. As a result they can now do more work of the same kind as before in the world.

Another important point is, that the enormous demand for machinery and the high price it commanded rendered necessary



manufacturers to make and ship to this coast articles which they supposed to be suitable for the purpose, but when the test was applied they proved to be useless. The local establishments were, therefore, called upon to supply the demand, thus giving the monopoly.

The Donahue foundry, now known as the Union Iron Works, established in eighteen hundred and forty nine, was the first enterprise of the kind on the Pacific Coast. In the next year the Vulcan foundry, the Sutter Iron Works, and the Pacific foundry began work. The mining operations during the two or three years succeeding eighteen hundred and fifty caused the erection of small foundries and machine shops in many mining towns.

The leading foundries of the Pacific Coast compare favorably with those in the East.<sup>1</sup> The Union Iron Works stand at the head of the Iron Industry of the Pacific Slope,<sup>2</sup> and has a

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<sup>1</sup> Hittell, Pac. Coast Ind., 653-659.

<sup>2</sup> San Francisco Journal of Commerce, Oct. 31, 1895.  
From a small beginning in a blacksmith shop in 1849 the Union Iron Works have grown to their present dimensions. In 1865 the name of the firm changed from Donahue to Prescott, Scott and Company. In 1885 business demanded larger quarters and the establishment was moved to Petrero, or what is also sometimes called South San Francisco. They are complete in their appointment; and are said to be as well, if not better, equipped, as

...to make out this great nation which  
they expected to be satisfied for the future, but when the  
test was applied they proved to be wrong. The local authorities  
therefore, called upon to make the demand, thus  
giving the monopoly.

The Dominion Company, who have the Union Iron Works,  
established in 1870, and in 1871, and the first  
operation of the kind on the Pacific Coast. In the next year  
the Union Company, the Great Iron Works, and the Pacific  
Company began work. The same operation during the two or  
three years succeeding 1870, and 1871, caused the  
erection of small factories and machine shops in many mining  
towns.

The leading companies of the Pacific Coast are the  
only ones in the West. The Union Iron Works stand at the  
head of the iron industry of the Pacific Coast, and have a

<sup>1</sup> Bitter, E. C. Co., 1871.

<sup>2</sup> San Francisco Journal of Commerce, Oct. 31, 1871.  
From a small beginning in a business and in 1871 the Union  
Iron Works have grown to their present dimensions. In 1871 the  
name of the firm changed from Union to Pacific, and  
Company. In 1872 the name changed to Pacific Iron Works and the  
Pacific Iron Works moved to Seattle, or what is now  
called South San Francisco. They are now in their present  
plant; and are said to be as well, if not better, equipped, as



history which shows enterprise and sound business judgment on the part of its managers.

#### 4. The Manufacture of Beet Sugar.

One of the most important industries today is the production of sugar beets and the manufacture of sugar therefrom. Wherever the proper conditions exist this is apt to be introduced. But however that may be, it is a fact that the raising of the sugar beet and the extraction of sugar is becoming a very important factor<sup>1</sup> in California's agricultural prosperity; no less can be said with reference to her manufacturing phase of this industry.

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any iron works in the United States. These mills manufacture mining, milling and metallurgical machinery. The principal mills of the West are built here. They have also done considerable for the United States government. They built the Charleston, cruiser; San Francisco, cruiser; Monterey, coast defense vessel; Olympia, cruiser; and the Oregon, line of battle ship, which is now in the course of construction.

They have at present about 1500 men at work; when running at full capacity they employ 2500. Int. Com., 400-401; San Francisco Journal of Commerce, Oct. 31, 1895, p 5; Manufacturer and Producers' Monthly. Nov., 1895, pp 16-17.

Another large concern is the Pacific Rolling Mills, established in San Francisco in 1865 with a capital of \$1,000,000. In 1890 their capital stock was doubled for the purpose of enlarging the mills. This mill likewise shows enterprise in management. Made the first steel rails used on S.F. streets. Many other mills might be mentioned, some of larger operation but of a special corporation, as Central Pacific R.R. shops at Sacramento.

<sup>1</sup> San Francisco Call, April 12, 1896.

history which shows enterprise and sound business judgment on the part of the managers.

#### 4. The Importance of Sugar.

One of the most important industries today is the production of sugar beets and the manufacture of sugar. However, the proper conditions exist this is not to be understood. But however that may be, it is a fact that the raising of the sugar beet and the extraction of sugar is becoming a very important factor in California's agricultural development; and this can be said with reference to the generalizing trend of this industry.

Any town which in the United States. There will be some mining, raising and manufacturing industries. The principal ally of the West are still more. They have also some manufacturing for the United States government. They build the U.S. Navy, Army, Air Force, and the Government, from the battle ship, vessel, aircraft, and the Government, from the battle ship, which is now in the hands of the Government.

They have at present about 1500 men at work; and from 1900 to 1910 especially they were 2200. In 1900, 1905, 1910, 1915, 1920, 1925, 1930, 1935, 1940, 1945, 1950, 1955, 1960, 1965, 1970, 1975, 1980, 1985, 1990, 1995, 2000.

Another large source is the Pacific Electric Railway, established in San Francisco in 1901 with a capital of \$2,000,000. In 1900 their capital stock was \$1,000,000 and the amount of stock issued was \$1,000,000. This will increase their capital in 1900, 1905, 1910, 1915, 1920, 1925, 1930, 1935, 1940, 1945, 1950, 1955, 1960, 1965, 1970, 1975, 1980, 1985, 1990, 1995, 2000.

A special corporation, the Central Pacific R.R. Co. of California, was organized in 1868 with a capital of \$1,000,000. It has since that time increased its capital to \$1,000,000,000.



This is an excellent illustration of mutual relations between agricultural and manufacturing interests. The existence of one means the development of the other. Take away one and both are destroyed.

Before taking up this industry on the Pacific Slope it will add to our interest if we give attention to a few comparative statements. The Report of the United States Treasury Department for the fiscal year ending June thirty, eighteen hundred and eighty nine gives the dutiable sugar import of this country to be more than two and one half billion pounds, which was valued at more than seventy eight and a half million dollars. Adding to these sums two million more pounds which are duty free, and which are valued at more than ten million dollars <sup>we</sup> get a grand total of nearly three billion pounds which had a value of about ninety million dollars<sup>1</sup>.

The amount of home production was two hundred and fifty four thousand five hundred and eight tons. Of this amount the southern states furnished two hundred and twenty four thousand five hundred and eight tons. The remaining thirty thousand was composed of sugar made from beets, sorghum, and maple, grown

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<sup>1</sup> 2,700,547,667 lbs. dutiable sugar.  
 \$78,596,779.06 value  
 228,540,513 lbs. free from duty.  
 \$10,260,048 value of free of duty sugar.  
 \$93,679,325 value of whole import. Tobin, Labor Report,  
 p 46.

This is an excellent illustration of mutual relations between agricultural and manufacturing interests. The existence of one means the development of the other. Take away one and both are destroyed.

Before turning to this history of the Pacific States it

will add to our interest if we give attention to a few comparative statements. The report of the United States Treasury Department for the fiscal year ending June thirty, eighteen hundred and ninety also gives the statistics of the amount of this country to be sent there from the half billion pounds, which was valued at more than twenty million and a half million dollars. Added to these were the million more pounds which the duty free, and which was valued at more than ten million dollars. For a general total of nearly thirty million pounds which we had a value of about ninety million dollars.

The amount of home production was the hundred and fifty four thousand five hundred and eight tons. Of this amount the southern states furnished 17 thousand and twenty four thousand five hundred and eight tons. The remaining 117 thousand was composed of sugar made from cane, sugarcane, and maple, grown

1,750,247,407 lbs. available sugar.

775,200,775 lbs. value

220,740,013 lbs. from foreign only.

11,200,000 value of free of duty sugar.

100,000 value of other sugar. Total. Labor report.



in the western states.

The part that the Pacific Coast had in this production was played by her two sugar refineries. They supplied the whole Coast with their output<sup>1</sup> and had considerable export trade.

Pass now to the consideration of the beet sugar question. Richard Gird says that "we are filled with amazement when we consider" that at the beginning the original plant was grown only for food and carried not more than five or six per cent of sugar, but by careful selection and cultivation for a period of years, less than one hundred, the sugar content has increased to fourteen and fifteen per cent, or more than double; that the chemist and mechanical engineer have during the same time discovered methods and plans whereby the viscid, sticky, bad tasting and bad smelling juices are extracted from the root, and by one continuous process, partly chemical and partly mechanical, can within twenty four hours, and without touching the beets with the hand, change them into the purest and whitest of sugar; that at the rate of eight hundred to one thousand tons per day,

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<sup>1</sup> The value of their total product in 1860 was \$1,600,000; in 1870, \$4,000,000; in 1880, \$7,000,000; in 1894, \$18,000,000. From this we get a gain of 150% between 1860-1870; 75% between 1870-1880; 300% between 1860-1880; 150% between 1880-1894. This due to the development of the Hawaiian plantations. Hittell, Pac. Coast Ind., 346-347; San Francisco Chronicle, Dec. 30, 1894.

in the western states.

The fact that the people have had in this connection  
has played by far the most important role in the whole  
United States history and has established a great legacy.

There now is the question of the best sugar condition  
Albany first says that "the people will be satisfied when we  
consider" that at the beginning the principal of the sugar

only for food and certain other uses in the sugar world of  
sugar, but by several different and original for a number of  
less than and better. The sugar world is a movement in four-

teen and fifteen per cent, or more than twenty; that the sugar  
and mechanical engineer have found the same thing discovered  
methods and have changed the whole thing, but leaving the

and selling sugar are expected from the west, and by the  
continuous process, partly chemical and partly mechanical, and  
within twenty four hours, and without touching the sugar with

the hand, change them into the refined and white sugar;  
that at the rate of eight hundred in the twenty four hours

1. The value of their sugar product in 1900 was \$1,200,  
000; in 1910, \$4,000,000; in 1920, \$7,000,000; in 1930, \$10,000,  
000. From this we get a gain of 10% between 1900-1910, 10% be-  
tween 1910-1920, 30% between 1920-1930; 10% between 1930-1940.  
This due to the development of the sugar industry. 1910-  
1940, 1940-1945, 1945-1950, 1950-1955, 1955-1960, 1960-1965,  
1965-1970, 1970-1975, 1975-1980, 1980-1985, 1985-1990, 1990-1995,  
1995-2000, 2000-2005, 2005-2010, 2010-2015, 2015-2020, 2020-2025,  
2025-2030, 2030-2035, 2035-2040, 2040-2045, 2045-2050, 2050-2055,  
2055-2060, 2060-2065, 2065-2070, 2070-2075, 2075-2080, 2080-2085,  
2085-2090, 2090-2095, 2095-2100, 2100-2105, 2105-2110, 2110-2115,  
2115-2120, 2120-2125, 2125-2130, 2130-2135, 2135-2140, 2140-2145,  
2145-2150, 2150-2155, 2155-2160, 2160-2165, 2165-2170, 2170-2175,  
2175-2180, 2180-2185, 2185-2190, 2190-2195, 2195-2200, 2200-2205,  
2205-2210, 2210-2215, 2215-2220, 2220-2225, 2225-2230, 2230-2235,  
2235-2240, 2240-2245, 2245-2250, 2250-2255, 2255-2260, 2260-2265,  
2265-2270, 2270-2275, 2275-2280, 2280-2285, 2285-2290, 2290-2295,  
2295-2300, 2300-2305, 2305-2310, 2310-2315, 2315-2320, 2320-2325,  
2325-2330, 2330-2335, 2335-2340, 2340-2345, 2345-2350, 2350-2355,  
2355-2360, 2360-2365, 2365-2370, 2370-2375, 2375-2380, 2380-2385,  
2385-2390, 2390-2395, 2395-2400, 2400-2405, 2405-2410, 2410-2415,  
2415-2420, 2420-2425, 2425-2430, 2430-2435, 2435-2440, 2440-2445,  
2445-2450, 2450-2455, 2455-2460, 2460-2465, 2465-2470, 2470-2475,  
2475-2480, 2480-2485, 2485-2490, 2490-2495, 2495-2500, 2500-2505,  
2505-2510, 2510-2515, 2515-2520, 2520-2525, 2525-2530, 2530-2535,  
2535-2540, 2540-2545, 2545-2550, 2550-2555, 2555-2560, 2560-2565,  
2565-2570, 2570-2575, 2575-2580, 2580-2585, 2585-2590, 2590-2595,  
2595-2600, 2600-2605, 2605-2610, 2610-2615, 2615-2620, 2620-2625,  
2625-2630, 2630-2635, 2635-2640, 2640-2645, 2645-2650, 2650-2655,  
2655-2660, 2660-2665, 2665-2670, 2670-2675, 2675-2680, 2680-2685,  
2685-2690, 2690-2695, 2695-2700, 2700-2705, 2705-2710, 2710-2715,  
2715-2720, 2720-2725, 2725-2730, 2730-2735, 2735-2740, 2740-2745,  
2745-2750, 2750-2755, 2755-2760, 2760-2765, 2765-2770, 2770-2775,  
2775-2780, 2780-2785, 2785-2790, 2790-2795, 2795-2800, 2800-2805,  
2805-2810, 2810-2815, 2815-2820, 2820-2825, 2825-2830, 2830-2835,  
2835-2840, 2840-2845, 2845-2850, 2850-2855, 2855-2860, 2860-2865,  
2865-2870, 2870-2875, 2875-2880, 2880-2885, 2885-2890, 2890-2895,  
2895-2900, 2900-2905, 2905-2910, 2910-2915, 2915-2920, 2920-2925,  
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2985-2990, 2990-2995, 2995-3000, 3000-3005, 3005-3010, 3010-3015,  
3015-3020, 3020-3025, 3025-3030, 3030-3035, 3035-3040, 3040-3045,  
3045-3050, 3050-3055, 3055-3060, 3060-3065, 3065-3070, 3070-3075,  
3075-3080, 3080-3085, 3085-3090, 3090-3095, 3095-3100, 3100-3105,  
3105-3110, 3110-3115, 3115-3120, 3120-3125, 3125-3130, 3130-3135,  
3135-3140, 3140-3145, 3145-3150, 3150-3155, 3155-3160, 3160-3165,  
3165-3170, 3170-3175, 3175-3180, 3180-3185, 3185-3190, 3190-3195,  
3195-3200, 3200-3205, 3205-3210, 3210-3215, 3215-3220, 3220-3225,  
3225-3230, 3230-3235, 3235-3240, 3240-3245, 3245-3250, 3250-3255,  
3255-3260, 3260-3265, 3265-3270, 3270-3275, 3275-3280, 3280-3285,  
3285-3290, 3290-3295, 3295-3300, 3300-3305, 3305-3310, 3310-3315,  
3315-3320, 3320-3325, 3325-3330, 3330-3335, 3335-3340, 3340-3345,  
3345-3350, 3350-3355, 3355-3360, 3360-3365, 3365-3370, 3370-3375,  
3375-3380, 3380-3385, 3385-3390, 3390-3395, 3395-3400, 3400-3405,  
3405-3410, 3410-3415, 3415-3420, 3420-3425, 3425-3430, 3430-3435,  
3435-3440, 3440-3445, 3445-3450, 3450-3455, 3455-3460, 3460-3465,  
3465-3470, 3470-3475, 3475-3480, 3480-3485, 3485-3490, 3490-3495,  
3495-3500, 3500-3505, 3505-3510, 3510-3515, 3515-3520, 3520-3525,  
3525-3530, 3530-3535, 3535-3540, 3540-3545, 3545-3550, 3550-3555,  
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3585-3590, 3590-3595, 3595-3600, 3600-3605, 3605-3610, 3610-3615,  
3615-3620, 3620-3625, 3625-3630, 3630-3635, 3635-3640, 3640-3645,  
3645-3650, 3650-3655, 3655-3660, 3660-3665, 3665-3670, 3670-3675,  
3675-3680, 3680-3685, 3685-3690, 3690-3695, 3695-3700, 3700-3705,  
3705-3710, 3710-3715, 3715-3720, 3720-3725, 3725-3730, 3730-3735,  
3735-3740, 3740-3745, 3745-3750, 3750-3755, 3755-3760, 3760-3765,  
3765-3770, 3770-3775, 3775-3780, 3780-3785, 3785-3790, 3790-3795,  
3795-3800, 3800-3805, 3805-3810, 3810-3815, 3815-3820, 3820-3825,  
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3855-3860, 3860-3865, 3865-3870, 3870-3875, 3875-3880, 3880-3885,  
3885-3890, 3890-3895, 3895-3900, 3900-3905, 3905-3910, 3910-3915,  
3915-3920, 3920-3925, 3925-3930, 3930-3935, 3935-3940, 3940-3945,  
3945-3950, 3950-3955, 3955-3960, 3960-3965, 3965-3970, 3970-3975,  
3975-3980, 3980-3985, 3985-3990, 3990-3995, 3995-4000, 4000-4005,  
4005-4010, 4010-4015, 4015-4020, 4020-4025, 4025-4030, 4030-4035,  
4035-4040, 4040-4045, 4045-4050, 4050-4055, 4055-4060, 4060-4065,  
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4095-4100, 4100-4105, 4105-4110, 4110-4115, 4115-4120, 4120-4125,  
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the beets are manufactured into one hundred tons or more of sugar; and that by the joint efforts of the tiller of the soil, the chemist in his laboratory, the mechanic in his shop, this not-long-since plebian root has become the source from which three fifths of the world's supply of sugar is produced.<sup>1</sup>

From another writer we get a few more facts regarding the history of this root. He says that "it is difficult to trace the exact origin of this plant, which has become of so much interest and value in Europe, and is not of national, but also of continental importance to the people of the other side of the Atlantic." Its antiquity finds evidence in the fact that Theophrastus<sup>2</sup> describes two varieties; the deep red and the white beet. Olivett de Serres mentions in fifteen hundred and ninety nine only the red beet and says that it had long been introduced into Europe and that "the juice yielded on boiling, is similar to sugar sirup." This variety was introduced into England in fifteen hundred and forty eight. The white variety was unknown until fifteen hundred and seventy.

The industrial value of the beet does not seem to present itself until seventeen hundred and forty seven. At that

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<sup>1</sup> San Francisco Call, Dec. 25, 1895.

<sup>2</sup> A Greek scholar. Lived about 372 B.C.

the people are concentrated into one limited form or more of  
author; and thus by the joint efforts of the rulers of the world,  
the elements in the laboratory, the mechanism in the workshop, this  
not-long-ago plastic world has become the concrete form which  
three fifths of the world's supply of sugar is produced.<sup>1</sup>

From another writer we get a far more poetic regarding  
the history of this root. He says that "it is difficult to trace  
the exact origin of this plant, which has become of so much im-  
portance and value in Europe, and is not of national, but also of  
continental importance in the people of the other side of the  
Atlantic." The earliest finds evidence in the East - at Trin-  
comalee, Ceylon, the earliest, the date and the origin  
lost. Owing to better conditions in Ceylon, however, and more  
time only the red root and sugar that it had long been intro-  
duced into Europe and that "the latter obtained its origin, in what  
far to sugar itself." This variety was introduced into England  
in fifteen hundred and thirty eight. The white variety was un-  
known until fifteen hundred and seventy.

The industrial value of the beet has been also in prom-  
ent place until recently, however, and forty years ago it was

<sup>1</sup> See *Encyclopedia Britannica*, Vol. 10, 1903.  
<sup>2</sup> A Greek scholar. Lived about 750 B.C.



time Margraff, a member of the Berlin Academy of Sciences, and believing that sugar was a regular constituent of plants other than sugar cane, made an examination of different varieties of vegetables and succeeded in separating from several kinds, varying quantities of crystallized sugar. He announced the results in a paper before the academy. He pronounced the beet the richest in sugar and believed that Europe would find it the basis of a great industry, and urged the Academy to consider the importance of the discovery and hoped to see steps taken leading to practical results. But death came too soon. However, Karl Franz Achard, his disciple, was the first to extract sugar from the beet on a large scale. But the announcement of his results fell on cold ears and nothing was done in a practical way for long time to come.

Interesting as is the history of this root, we must leave it here in order to give attention to some facts of its manufacture in France, Germany, Austria Hungary and the United States.

Under pressure of national emergency Napoleon III resolved to make France independent of sugar supply from foreign countries. This opened the way for the manufacture of sugar from beets in that country. His measures of encouragement were

time necessary, a number of the Berlin Academy of Sciences, and  
 believing that paper was a valuable contribution to the study of  
 these great trees, made an examination of different varieties of  
 vegetation and concluded in writing two general ideas, one  
 the possibility of organized matter. He announced the results  
 in a paper before the Academy. He pronounced the first the rich-  
 and in sugar and believed that it was the first of the class  
 of a great industry, and urged the Academy to consider the im-  
 portance of the discovery and hoped to see it in a form leading  
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 from which the Academy, and the first to extract sugar from  
 the seed in a large scale. But the importance of his results  
 will be clear and nothing was done in a practical way for  
 long time to come.

Interesting as is the history of this work, it was not  
 it was in order to give attention to the work of the Academy  
 to give in French, German, and in English, the work of the  
 Academy.

Under pressure of national emergency I have been re-  
 solved to make a more important contribution to the study of these  
 countries. This seemed the way for the advancement of science  
 from which in that country. It seemed to me that the most



to exempt from taxation for four years the product of every man who made a ton of sugar in France; also promised an extension of license to those who discovered improved methods. He further, established four imperial sugar factories with a capacity to produce two hundred tons per annum. In eighteen hundred and thirty seven, forty nine thousand tons were produced, and in eighteen hundred and eighty nine the amount put out was seven hundred thousand tons. The ten year periods from the beginning show amounts varying between the two above given.

The total value of the beet sugar product in France for each of the three years eighteen hundred and seventy three, seventy four, and seventy five was over fifty four million dollars. This required more than sixty thousand persons exclusive of those employed in the field.<sup>1</sup>

In Germany a liberal policy was likewise pursued. And the latest figures consulted showed Germany's production in eighty nine to be one million two hundred and twenty thousand tons of beet sugar.

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<sup>1</sup> Tobin, Labor Report, p 47. The following table shows the amounts produced in France from 1837 to 1887 and 1889 in ten year periods.

In 1837.	49,000 tons	In 1877	243,000 tons
" 1847	64,000 "	" 1887	465,000 "
" 1857	151,000 "	" 1889	700,000 "
" 1867	224,7000 "		

of those employed in the field.



Austria also had a liberal policy in this matter and produced in eighteen hundred and eighty nine seven hundred and thirty thousand tons.

Russia in the same year produced four hundred and eighty thousand tons.<sup>1</sup> Belgium one hundred and ninety five thousand tons.

In the United States there was in eighteen hundred and eighty seven, a production of two hundred tons of sugar from beets; in eighty eight, eighteen hundred tons; in eighty nine about three thousand; in ninety, about twelve thousand tons;<sup>2</sup> in ninety two more than thirteen thousand tons.<sup>3</sup>

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<sup>1</sup> The following table shows production of Germany, Austria and Russia.

In 1877	Germany	produced	239,000	tons
" 1887	"	"	985,000	"
" 1877	Austria	"	341,000	"
" 1887	"	"	460,000	"
" 1877	Russia	"	250,000	"
" 1887	"	"	315,000	"

Tobin, Labor Report. p 47.

European production for the years,

1887 2,451,900 tons

1888 2,764,457 "

1889 3,445,000 "

Tobin, Labor Report, p 48.

<sup>2</sup> Tobin, Labor Report, p 48.

<sup>3</sup> Report of Sec. of Agri. of U.S. 1892, p 468.





California produces more beet sugar than any other state in the Union. The manufacture of this kind of sugar commenced twenty five years ago when a factory was established at Alvarado with a capacity of three hundred tons daily. Subsequently other factories were founded, but have not maintained themselves any length of time. There are two exceptions. Since eighteen hundred and eighty seven a new start seems to have been taken. Then the Pacific Coast Sugar Company was organized; soon afterward the Western Beet Sugar Company. There are now three large beet sugar refineries in the state; at Alvarado, Watsonville and Chino, all are in full operation and turn out large quantities of sugar each year.<sup>1</sup>

<sup>1</sup> Here is a table which shows comparatively the produce of each of the California factories; that of the Nebraska factories and of Utah as well.

Utah Sugar Co. (Dec. 19, 1892)	1,473,500 lbs.
Alameda (Cal) Sugar Co. (Dec. 8, 1892)	2,506,860 "
Western Beet Sugar Co. (Jan. 27, 1893)	11,390,921 "
Chino Valley Beet Sugar Co. (Oct. 28, 92)	7,903,541 "
Oxnard (Neb.) Beet Sugar Co. (Nov. 19, 92)	2,110,110 "
Norfolk " " " (Nov. 9, 92)	1,698,400 "
Total----	27,083,322 "

Production in

	<u>1891</u>	<u>1892</u>
Utah		
Utah	1,094,900 lbs.	1,473,500 lbs.
Cal.	8,175,438 "	21,801,322 "
Neb.	2,734,500 "	3,808,500 "
Total	12,004,838 "	27,083,322 "

Report of Sec. of Agri. of U.S. 1892, pp. 467-468.

The Beet sugar factory at Alvarado was brought into existence in 1870. In 1887 it was partially destroyed by the explosion of a boiler; but a new company (The Pacific Coast Sugar

California physicians and other people from other States in the Union. The result of this kind of sugar boycott twenty five years ago when a boycott was established at Alameda with a possibility of losing business from daily. Responsibility other factories were closed, but have not maintained them since any kind of time. There is no restriction. Alameda is closed and might have a new plant closed in some way. Then the Pacific Coast Sugar Company was organized; and afterward the Western Sugar Beet Company. It is now the largest beet sugar refiner in the world; at Alameda, California and Idaho, all are in full operation and from our large quantities of sugar each year.

There is a table which shows comparatively the production of sugar in the Western States; that in the Western States and of Utah and Idaho.

Utah Sugar Co. (1901, 1902)	1,473,000 lbs.
Alameda Sugar Co. (1901, 1902)	2,000,000
Western Sugar Co. (1901, 1902)	11,000,000
Utah Valley Sugar Co. (1901, 1902)	7,000,000
Idaho Sugar Co. (1901, 1902)	2,100,000
Idaho Sugar Co. (1901, 1902)	2,100,000
Total--	27,000,000

#### Production in

Year	1901	1902
Utah	1,473,000 lbs.	1,473,000 lbs.
Idaho	2,100,000	2,100,000
Alameda	2,000,000	2,000,000
Western	11,000,000	11,000,000
Total	27,000,000	27,000,000

Report of Sec. of Agric. for 1902, p. 1407-1408.  
The beet sugar factory at Alameda and others have increased in 1902. In 1902 it was partially destroyed by fire and a new one is being built. The beet sugar factory at Alameda and others have increased in 1902. In 1902 it was partially destroyed by fire and a new one is being built. The beet sugar factory at Alameda and others have increased in 1902. In 1902 it was partially destroyed by fire and a new one is being built.



A large portion of California is especially adapted to the cultivation of the sugar beet. This fact accounts for the enormous growth in the production of beet sugar from one million two hundred thousand pounds in eighteen hundred and eighty three to the estimated produce for ninety five and ninety six

Company<sup>†</sup> was organized immediately with a capital of \$1,000,000 in 10,000 shares.

Claus Spreckles built the Watsonville factory shortly after his return from Europe in 1887. This is the largest in the state and began with a capacity of 350 tons of beets a day. This has been doubled so now 700 tons a day is its capacity and its influence on surrounding community is very marked.

The factory at Chino was organized in 1890. Buildings cost \$200,000, machinery \$200,000. Consumed beets from 2250 acres the first year, 4000 acres the second, and 5000 acres the third. It has a capacity of 350 tons of beets a day. The output of this factory for the last five years is as follows:

1891	3,300,000 lbs.	1894	9,471,672 lbs.
1892	7,747,385 "	1895	22,000,000 " of sugar.
1893	15,063,357 "		

The estimated product of the beet sugar factories from 1883 to 1889 is shown in these figures. 1883, 1,200,000 lbs; 1884, 2,134,273; 1885, 1,343,148; 1886, 1,688,258; 1887, 572,466 due to explosion at Alvarado; 1888, 4,230,000; 1889, 5,170,000.

Int. Com. 329; 328, 409-410. San Francisco Call, Dec. 25, 1895. p 38. Watts, Labor Report, pp 21-22.

Tobin, Labor Report 46-59. (1889-1890).

A large portion of the output is necessarily shipped to the millinery of the paper mill. This fact accounts for the enormous growth in the production of paper from one mill to the other. The output of the mill is estimated to be about 100,000 tons in the last year.

Company was organized in 1900 with a capital of \$1,000,000 in 1900.

After his return from Europe in 1901, Mr. J. P. Morgan, Jr., who was then a member of the Board of Directors, was elected President of the company. This was done because he was the only one in the company who had extensive experience in the paper industry.

The company was organized in 1900 with a capital of \$1,000,000 in 1900. The company was organized in 1900 with a capital of \$1,000,000 in 1900. The company was organized in 1900 with a capital of \$1,000,000 in 1900.

The company was organized in 1900 with a capital of \$1,000,000 in 1900. The company was organized in 1900 with a capital of \$1,000,000 in 1900. The company was organized in 1900 with a capital of \$1,000,000 in 1900.

The company was organized in 1900 with a capital of \$1,000,000 in 1900. The company was organized in 1900 with a capital of \$1,000,000 in 1900. The company was organized in 1900 with a capital of \$1,000,000 in 1900.



campaign which is forty million pounds.<sup>1</sup>

## 5. Manufacture of Flour.

Prominent among the industries of the Pacific coast stands wheat culture. It was the product of the vast wheat fields of the Sacramento and San Joaquin valleys that first gave notice to the world of the immense agricultural possibilities of this western coast. But from the time when the first pioneers left the rocker, the sluice box and the pan, for the plow, the harrow and the reaper down to the present moment, the production of wheat has been one of the most prominent and favored pursuits of the California agriculturist.<sup>2</sup>

Keeping this fact in mind then, a few historical paragraphs will be of interest. Undoubtedly the cultivation of wheat has the honor of being the oldest agricultural industry on the Coast. It may be assumed that this cultivation is a little more than a hundred years old. It dates back to that pioneer wheat field planted on the shores of the San Diego Bay by the hardy hand of the explorers, who first set up there the cross of the church and the Spanish standard. It was the policy of these Franciscan fathers to make the Missions self-support-

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<sup>1</sup> San Francisco Chronicle, Dec. 30, 1895.

<sup>2</sup> Int. Com. p 335.

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1. San Francisco, Feb. 2, 1900.

2. San Francisco, Feb. 2, 1900.



ing.<sup>1</sup> Hence we find that in every mission from San Diego up, wheat was sown as a food supply. Here we see the extension of the industry along the same lines as the extension of civilization through the influence of the founders of the missions.<sup>2</sup>

From the first Californian wheat field situated on the sunny shores of the southern harbor down through the years to the present time have come reports of remarkable harvests garnered. For the period between eighteen hundred and eleven, and eighteen hundred and twenty the average yield of wheat was sixty seven thousand three hundred and eighty bushels for the missions alone. But just previous to this the export trade sprang into existence. And when Mexico became independent of Spain the production of wheat declined. At the same time the export trade was confined to the Hudson Bay Company's posts, to the Russian possessions and to Honolulu. During this time Oregon was taking her first steps toward wheat production. In eighteen hundred and fifty four California produced two million bushels of wheat and four years later she entered the list as a large exporter of breadstuffs. Between the years eighteen hundred and sixty and eighteen hundred and seventy the production of wheat

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<sup>1</sup> Manufacturers' and Producers' Monthly, Nov. 1895, p 5.

<sup>2</sup> San Francisco Chronicle, Dec. 30, 1894.





began to move to the interior valleys where it was found that the wheat was brighter, drier and was less exposed to injury during transportation. The next ten years was a prosperous period and with the extension of railroads went the increase in wheat acreage. But during the ten following years not only was the maximum, but also the minimum yield reached. This was due, says Horace Davis to heavy rainfall in the one case and light rainfall in the other.<sup>1</sup>

The first attempt at flour making was in seventeen hundred and eighty two at the Missions. There were no flour mills but wheat was ground in the most primitive fashion. In seventeen hundred and eighty six La Perouse gave the Carmel Mission

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<sup>1</sup> The following table gives yield and acreage from 1868 to 1890.

	<u>acreage</u>	<u>bushels</u>
1868	1,050,000	21,000,000
1869	1,098,901	20,000,000
1870	746,052	14,175,000
1871	1,523,363	16,757,000
1872	2,198,360	25,600,000
1873	2,592,899	21,504,000
1874	2,150,000	28,380,000
1875	2,163,636	23,800,000
1876	2,307,692	30,000,000
1877	2,315,789	22,000,000
1878	2,470,000	41,990,000
1879	2,500,000	35,000,000
1880	2,117,350	33,877,000
1881	2,367,200	31,406,000
1882	2,767,000	36,046,000
1883	2,794,000	36,322,000
1884	3,360,000	44,320,000

...in the city.



a handmill, which performed the work of four women in the old way. In seventeen hundred and ninety six a flour mill was erected at Santa Cruz which was followed by two or three more later on. These mills were run by water power and operated a single pair of stones. By eighteen hundred and forty eight the pioneer state (Oregon) in the manufacture of flour had nine mills which were more in accordance with our idea of a flouring mill. One of the earliest establishments in California was the Golden Gate Mill,<sup>1</sup> built in eighteen hundred and fifty two. The largest mill<sup>2</sup> in the state is at Vallejo. There are, however, about

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1885	2,822,400	26,592,000
1886	3,104,640	36,135,000
1887	2,766,235	30,429,000
1888	2,351,300	28,451,000
1889	3,291,820	43,781,000
1890	2,426,730	29,121,000

Int. Com., p 304.

<sup>1</sup> This mill was established by Couro and Co. It had a capacity of 300 bbls. a day. In 1860 it passed into the possession of Horace Davis, who still owns it. The mill now has a capacity of 1000 bbls. a day. Int. Com. p 403.

<sup>2</sup> This mill started with a capacity of 150 bbls. a day. in 1864 increased to 650. In 1874 an additional mill was built, with 200 bbl. capacity. In 1883 the mills were enlarged and introduced the French roller process; these two mills combined have a capacity of 2200 bbls. per day. Later the business was incorporated and now with a new mill in Contra Costa Co. of more than 4200 bbls. a day.

The following are the largest mills in the State.

<u>Name of Mill</u>	<u>Location</u>	<u>Daily Capacity</u>
Starr Mill	Port Costa	2000 bbls.
Starr 'A'	Vallejo	1400 "

1 This will be completed by June 30. It had a quantity of 100 copies. In 1960 it passed into the hands of Robert Taylor, who still owns it. The will now has a quantity of 100 copies. A few. In 1960, a few.

2 This mill started with a capacity of 150 bbls. a day. In 1884 increased to 300. In 1894 another mill was built with 500 bbl. capacity. In 1907 the mill was enlarged and increased the power to 1000 bbls. a day. In 1910 the mill was enlarged to 1200 bbls. a day. In 1912 the mill was enlarged and now with a new mill in Great Britain Co. of 1500 bbls. a day.

Year of Birth	Location	Notes
1900	St. Louis	
1901	St. Louis	
1902	St. Louis	
1903	St. Louis	
1904	St. Louis	
1905	St. Louis	
1906	St. Louis	
1907	St. Louis	
1908	St. Louis	
1909	St. Louis	
1910	St. Louis	
1911	St. Louis	
1912	St. Louis	
1913	St. Louis	
1914	St. Louis	
1915	St. Louis	
1916	St. Louis	
1917	St. Louis	
1918	St. Louis	
1919	St. Louis	
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2014	St. Louis	
2015	St. Louis	
2016	St. Louis	
2017	St. Louis	
2018	St. Louis	
2019	St. Louis	
2020	St. Louis	
2021	St. Louis	
2022	St. Louis	
2023	St. Louis	
2024	St. Louis	
2025	St. Louis	
2026	St. Louis	
2027	St. Louis	
2028	St. Louis	
2029	St. Louis	
2030	St. Louis	



fifty first class mills in California with a total capacity of about twenty thousand barrels a day. About seven hundred and fifty men are given employment. All the larger mills run continuously.

The subjoined table shows the amount of Pacific Coast flour manufactured. In eighteen hundred and fifty five and fifty six the amount was one hundred and seventy thousand barrels plus; while in eighteen hundred and ninety three and ninety four the amount was less than two million barrels. But this by no means represents the highest ever reached which was more than five million barrels in the crop year of eighteen hundred and ninety and ninety one.<sup>1</sup> This was due to great demands for Coast flour.

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Stockton City	Stockton	1200 bbls.
Crown	Stockton	1000 "
Golden Gate	San Francisco	1000 "

The other mills range from 800 bbls to 150 bbls. daily capacity  
Int. Com. p 409; Walts, Labor Report, p 16-17.

<sup>1</sup> This table represents receipts of flour at San Francisco by crop years.

1855 - '56	170,591 bbls.	1856 - '57	131,350 bbls.
1857 - '58	127,312 "	1858 - '59	226,614 "
1859 - '60	370,876 "	1860 - '61	491,237 "
1861 - '62	455,078 "	1862 - '63	599,300 "
1863 - '64	397,192 "	1864 - '65	246,683 "
1865 - '66	667,374 "	1866 - '67	1,201,585 "
1867 - '68	824,696 "	1868 - '69	831,920 "

Year	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1907	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100



1869 - '70	684,433	bbls.	1870 - '71	483,653	bbls.
1871 - '72	586,998	"	1872 - '73	915,960	"
1873 - '74	565,750	"	1874 - '75	448,419	"
1875 - '76	473,568	"	1876 - '77	515,014	"
1877 - '78	379,450	"	1878 - '79	2,596,808	"
1879 - '80	2,712,992	"	1880 - '81	2,716,445	"
1881 - '82	3,227,242	"	1882 - '83	4,028,209	"
1883 - '84	5,091,272	"	1884 - '85	5,215,592	"
1885 - '86	4,831,154	"	1886 - '87	4,408,362	"
1887 - '88	732,662	"	1888 - '89	1,196,021	"
1889 - '90	1,463,194	"	1889 - '91	5,768,578	"
1891 - '92	1,415,962	"	1892 - '93	1,280,324	"
1893 - '94	1,055,824	"			

San Francisco Chronicle, Dec. 30, 1894.

4.00	200,200	75'	-	7501	4.00	200,200	75'	-	7501
"	200,210	75'	-	7502	"	200,210	75'	-	7502
"	200,220	75'	-	7503	"	200,220	75'	-	7503
"	200,230	75'	-	7504	"	200,230	75'	-	7504
"	200,240	75'	-	7505	"	200,240	75'	-	7505
"	200,250	75'	-	7506	"	200,250	75'	-	7506
"	200,260	75'	-	7507	"	200,260	75'	-	7507
"	200,270	75'	-	7508	"	200,270	75'	-	7508
"	200,280	75'	-	7509	"	200,280	75'	-	7509
"	200,290	75'	-	7510	"	200,290	75'	-	7510
"	200,300	75'	-	7511	"	200,300	75'	-	7511
"	200,310	75'	-	7512	"	200,310	75'	-	7512
"	200,320	75'	-	7513	"	200,320	75'	-	7513
"	200,330	75'	-	7514	"	200,330	75'	-	7514
"	200,340	75'	-	7515	"	200,340	75'	-	7515
"	200,350	75'	-	7516	"	200,350	75'	-	7516
"	200,360	75'	-	7517	"	200,360	75'	-	7517
"	200,370	75'	-	7518	"	200,370	75'	-	7518
"	200,380	75'	-	7519	"	200,380	75'	-	7519
"	200,390	75'	-	7520	"	200,390	75'	-	7520

NOTE: THE ABOVE LIST IS NOT TO BE USED FOR THE PURPOSES OF THE ABOVE LIST.



## Chapter III.

## Factors in the Pacific Coast's Manufacturing Development.

It is intended in this chapter to give an account of some of the most important factors, that have entered into the development of the manufacturing industries of the Pacific Coast. For this purpose the industries of California will form the basis, because information of a very reliable character has not yet come in from other sections of the Coast.

That the Pacific Coast has from a geographical position great facilities for manufacturing is an obvious fact. It possesses an immense water power that is not utilized at all. What can and will be done with this power is hard to definitely determine. Other factors, however, that have a closer connection for our purpose are (1) Enterprise, (2) Labor, (3) Fuel, (4) Wages, (5) Interest, (6) Insurance, (7) Taxes, (8) The railroad.

## (1) Enterprise.

It has been and is a frequent charge today that the capitalists of the Pacific Coast are void of enterprise. That they would not venture their capital in certain kinds of under-

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takings. Is this charge true? Probably not. It was this great enterprising spirit that started and still keeps up the manufactures of the Coast. The fact that there are too small a number of factories, that there is a decline in woolen mills, as of other manufacturing industries is not due to lack of enterprise on the part of man with money. But high wages, the independent spirit and condition of many of the poor people, taxes, high price for fuel and the necessity of importing supplies of many kinds, all have discriminated against manufacturing industries of our coast.

As a matter of fact many California factories have been unprofitable; this is especially true as to the earlier ventures in various branches of industry. Many of them were premature and for years were kept in operation not because they were profitable but because the buildings and machinery could not be used for anything else without greater loss.

While these facts account for much of the manufacturing ill success, yet a glance at the other side shows a different result and spirit from that suggested by the charge. The characteristic feature of Pacific Coast undertakings is a remarkable boldness in investment. Scarcely a branch of occupation pursued here that has been without some undertaking noted for

[illegible]

not at all for anything like what I was told.



its comprehensiveness of plan and amount of capital. The world <sup>respects</sup> has nothing in many to equal the results of Californian enterprise.

The important results achieved in California should be credited mainly to the exceptional intelligence and energy of her inhabitants. It is said that they have ransacked the habitable globe for the best workmen, the most skilled engineers, the best tools, the strongest and fastest horses, the cows that give the most milk and the most prolific vines and trees.<sup>1</sup>

## (2) Labor

Another important factor is labor. The most important aspect of this question is the Chinaman and his services. Without him our manufactures on this Coast would have been economically impossible, especially during their earlier stages.

While this is true yet the presence of the Chinamen has worked against Pacific Coast manufactures, in that it prevented many from coming who would be of service to the Coast's industries in a more positive way. But for the most part the Chinaman is more of a supplement than a substitute for white labor.

## (3) Wages.

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<sup>1</sup> Hittell, Pac. Coast Ind., 49-53.

its comprehensive of plan and amount of capital. The work  
has been in many to equal the results of California  
policy.

The important results achieved in California should be  
avoided mainly to the extended intelligence and energy of  
the industry. It is said that they have exceeded the im-  
table risks for the past year, the most skilled workers,  
the best tools, the strongest and latest methods, the work  
that give the most with the most brilliant vision and power.  
(B) Labor

Another important factor is labor. The most important  
part of this question is the Chinaman and his activities. With  
him our manufacturers on this coast would have been economical  
impossible, especially during their early stages.

While this is true, yet the progress of the Chinaman has  
worked against Pacific Coast manufacturers, in that it prevented  
many from coming who would be of service to the Coast's in-  
dustry in a more active way. But for the most part the  
Chinaman is not of a supple nature than a manufacturer for white  
labor.

(C) Capital



Another factor is wages. The Pacific Coast pays higher wages in general than any other section of the Union. California, however, pays the highest wages to the employees of the woolen manufacture. The following comparison shows the wages of Adult Male, Adult Female and Youth in the different states of the Union.

	<u>Male</u>	<u>Female</u>	<u>Youth.</u>
Maine	\$1.42	\$0.96	\$0.71
New Hampshire	1.61	1.15	--
Vermont	1.31	1.11	.59
Mass.	1.35	1.03	.69
Ct.	1.46	.96	.54
N.Y.	1.38	.94	.61
N.J.	1.21	.83	.50
Penn.	1.65	1.10	.70
Del.	1.63	1.27	.61
Md.	1.47	.93	.50
N.C.	1.07	.70	.43
Ky.	1.69	.79	.60
Ind.	1.42	.97	.62
Ill.	1.65	.80	.52
Ia.	1.81	--	.67
Cal.	2.45	--	.75

In the cotton mills the wages of men run from \$1.65 to \$3.50 a day; of women, from \$1.00 to \$1.80; of boys and girls, from .50 to \$1.00. The hours constituting a day's work are ten. That which the cotton industry has to contend with is long hours and low wages in southern states. In North Carolina the wages are the lowest. There formen receive from \$1.25 to \$2 per day; weavers, from \$1.50 to \$2.25. Men get from .50 to \$1

Another factor is wages. The Pacific Coast pays higher wages in general than any other section of the United States, however; yet the highest wages in the employment of women seamstresses. The following comparison shows the wages of adult girls, adult females and boys in the different states of the Union.

State	Male	Female	Young
Maine	\$1.42	\$0.96	\$0.71
New Hampshire	1.41	1.12	—
Vermont	1.41	1.11	.62
Mass.	1.38	1.03	.60
N.H.	1.46	.70	.64
N.Y.	1.03	.64	.61
N.J.	1.31	.89	.60
Penn.	1.33	1.10	.70
Del.	1.32	1.17	.63
Pa.	1.47	.43	.53
N.D.	1.07	.70	.46
Vt.	1.41	.73	.60
Ind.	1.43	.67	.62
Ill.	1.43	.60	.53
W.	1.41	—	.47
Cal.	2.28	—	.76

In the eastern half the wages of men run from \$1.40 to \$3.80 a day; of women, from \$1.00 to \$1.50; of boys and girls from .50 to \$1.00. The lowest remuneration a day's work will earn in that which the cotton industry has to contend with is found here and low wages in southern states. In North Carolina the wages are the lowest. There females receive from \$1.25 to \$1.50 per day; men, from \$1.50 to \$2.25. Men get from .50 to \$1



women, from .40 to .60 a day. The same contrast is seen in almost every industry. In some cases it does not work as a hindrance, for the high wages attract the best mechanics or workmen.

#### (4) Interest.

The manufacturers are placed at a decided disadvantage in their effort to compete with those of the states east of the Rocky mountains. Here in many industries the owners have to carry large amounts of stock all the time, but must sell on three or four month's credit. Raw material must be paid for on delivery, and the hands must be paid weekly or monthly. Hence larger amounts of money must be kept on hand to keep the mill in operation, and to do this money must be borrowed. In the East the manufacturer can obtain money from four to five per cent interest, payable semi-annually; here he must pay from seven to eight per cent interest payable monthly.

#### Fuel:

(5) Fuel is about three times higher here than in the East. There coal is obtained for less than three dollars a ton. While on this coast with one or two exceptions, coal costs from seven and one half to eight and one half dollars.

The extent, however, of the development of the oil

woman, from 40 to 50 a day. The same complaint is said to be  
more every industry. In some cases it does not work as a rule  
twice, for the high wages attract the best mechanics of the  
area.

(e) Interest.

The manufacturers are placed at a decided disadvantage  
in their effort to compete with firms of the same kind of  
highly organized. They in many industries the same have to  
pay large amounts of stock all the time, but must sell on time  
on four month's credit. The material cost is paid for on de-  
livery, and the banks must be paid weekly or monthly. Hence  
larger amounts of money must be kept on hand to keep the mill  
in operation, and so the money must be recovered. In this  
case the manufacturer can obtain money from time to time by  
cash interest, payable semi-annually; but he must pay time  
seven to eight per cent interest payable monthly.

Foot:  
(C)

There is even three times higher than in the last  
These cost is obtained for less than lower delivery a ton.  
While on this cost with one or two exceptions, each cost  
from seven and one half to eight and one half dollars.  
The extent, however, of the development of the oil



well is sufficient now to have some influence. Petroleum has been found to be an admirable substitute for coal and is furnished at a much less cost. This is a new factor and only the future will develop its importance in manufacturing industries of the Pacific Coast. Another very important aspect of the fuel question is the transmission of propelling force in the form of electricity. This is destined to revolutionize the manufacturing industries. Already are many of Sacramento's establishments running their machinery by power generated by the water force fourteen miles away. Other places are putting in plants to utilize their waste power.

#### (6) Taxes.

Many states in the Union exempt manufactures from taxation. Those industries that need encouragement, in many places have to bear no tax until sufficiently well established to do, but California taxes everything about a factory that can be taxed at all. Many instances might be cited but one will suffice, in eighteen hundred and eighty nine the Pioneer Woolen Mills had to pay seven thousand dollars in taxes. Does this encourage and revive a declining industry? Certainly not.

will be withdrawn now in order to be withdrawn. Withdrawal has been found to be an absolute necessity for the fact that it is not possible to have a more than one. This is a very serious and only the future will develop the importance of maintaining industrial of the Pacific Coast. Another very important aspect of the question is the examination of proposed laws in the form of electricity. This is another in maintaining the economy of the industry. Already we have many of the country's electrical plants running their machinery by power generated by the water away. Lower fourteen miles, that is, the water in plants to utilize their waste power.

(a) Taxes.

Very often in the United States the tax-ation. These industries that are developed, in many places have to bear no tax until sufficiently well established so as to be California's large industry with a factory that can be taxed at all. Some industries might be taxed but not all. In addition, in addition to the other side the industry will be able to pay over the same volume in taxes. These industries and taxes a definite industry. Generally not.



## (7) Railroads.

Finally, we come to the railroad. Before the coming of the railroad the Pacific Coast manufacturers were protected from the competition of the Eastern manufacturer. Those things made at home found a home market so long as there was any demand at all. But it is impossible to estimate just what and how much influence the factor has had in the coast's manufacturing development. For when it came in and began to grow it opened up the great area lying to the east of the Sierras to the California and Oregon manufacturer. But at the same time it placed a check upon production here since commodities from this quarter met those from the east in the new area. This factor constitutes an element of many sides and they all can only be shown by the study of the development of the Pacific railroads on the Coast.

San Francisco, 1891.

Chicago, Ill., The Publishers and Distributors of the City, 1894.

San Francisco, 1894. The Pacific Coast of the United States and the Pacific Coast of the United States.

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(7) Railroads.

Finally, we come to the railroad. Before the coming of the railroad the Pacific Coast manufacturers were protected from the competition of the Eastern manufacturers. Those who made it found a home market as long as there was any demand at all. But this is impossible to estimate just what the influence the factor has had in the coast's manufacturing development. For when it came in and began to grow it opened up the great river lying to the west of the Sierras to the United States and Oregon manufacturers. But at the same time it placed a check upon production here since commodities from this quarter may come from the east in the new river. This factor has assisted an amount of early ideas and things all the way to the by the way of the development of the Pacific coastline on its coast.



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